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MARCH 1991
VOLUME 52
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COLLEGE & RESEARCH LIBRARIES

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ISSN 0010-0870



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College & Research Libraries (ISSN 0010-0870) is the official journal of the Association of College and Research Libraries, a division of the American Library Association. It is published bi-monthly at 50 E. Huron St., Chicago, IL 60611. Second-class postage paid at Chicago and at additional mailing offices. **POSTMASTER:** Send address changes to *College & Research Libraries*, 50 E. Huron St., Chicago, IL 60611.

Manuscripts of articles should be sent to the Editor: Gloriana St. Clair, c/o E506 Pattee Library, The Pennsylvania State University Libraries, University Park, PA 16802; 814-865-1858; FAX: 814-865-3665. Copies of books for review should be sent to Stephen Lehmann and Robert Walther, Reference Department, Van Pelt Library 6206, University of Pennsylvania Libraries, Philadelphia, Pennsylvania 19104.

Advertising office: Art Beck, Advertising Sales Manager, Choice, 100 Riverview Center, Middletown, CT 06457, 203-347-1387. Production and circulation office: ALA Publishing Services, ALA, 50 E. Huron St., Chicago, IL 60611: Eileen Mahoney; Dianne M. Rooney; Bruce Frausto, Daniel Lewis, Donovan Vicha, Josephine Gibson-Porter, and Amy Brown. Change of address and subscription orders should be addressed to *College & Research Libraries*, for receipt at the above address, at least two months before the publication date of the effective issue.

Subscription price: To members of ACRL,

\$22.50, included in membership dues; to nonmembers, U.S. \$45; Canada \$50; and all other countries \$55. Retrospective subscriptions not accepted. Single copies and back issues, \$8.50 each.

Inclusion of an article or advertisement in *College & Research Libraries* does not constitute official endorsement by ACRL or ALA.

A partial list of the services indexing or abstracting the contents of *C&RL* includes: *Current Index to Journals in Education*; *Information Science Abstracts*; *Library & Information Science Abstracts*; *Library Literature*; and *Social Sciences Citation Index*. Book reviews are included in *Book Review Digest*, *Book Review Index*, and *Current Book Review Citations*.

The paper used in this publication meets the minimum requirements of American National Standard for Information Science—Permanence of Paper for Printed Library Materials, ANSI Z39.48-1984.∞

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Editorial

Resource Sharing

A series on the crisis of rising journal prices begins in this issue with an article by Kenneth Marks et al. Articles in subsequent issues will further define the problem and offer some directions toward resolution. A greater commitment to resource sharing must be one response to this conundrum.

The number of monographs, serials, and other formats appropriate to a college or university library has increased while the prices, particularly for serials, have exploded. At the same time, the introduction of online and CD-ROM technologies has made users more demanding. The laborious process of copying citations from a paper index might have slowed undergraduates' quest for knowledge in the past, but now they arrive at service desks with printed citation lists of esoteric books and journals. Further, the graduate student and the faculty researcher may produce an even more comprehensive and demanding list from specialized online databases. Only in the largest libraries can all of these citations be found locally. Thus, resource sharing is increasingly important as a strategy to meet users' needs.

David Weber's "A Century of Cooperative Programs among Academic Libraries" in the May 1976 issue of *C&RL* chronicles and analyzes resource sharing programs. Historically, librarians speak eloquently about the need for sharing materials yet continue to build, to the best of their abilities, insular collections. The rhetoric of resource sharing heightens in proportion to increases in materials prices, declining values of the dollar, and erosions in local funding. But

when these pressures on the materials budget ease, interest in resource sharing wanes. A modest interlibrary loan traffic can then meet the requests of dissertation writers and other serious scholars. However, in the last few years demand has increased dramatically, with interlibrary loan reflecting the expanded activity. For instance, among colleges in Oregon's State System of Higher Education, the increase has been 164 percent in just the last four years.

While technology in the form of electronic databases has increased demand, other technologies—grand bibliographic utilities and modest fax machines—have increased efficiencies. Sources of materials can be quickly identified; items can be ordered and delivered electronically. Nevertheless, technologies have generally outstripped policies and political commitments. Three areas require additional consideration to fulfill the technological potentials for resource sharing: policy development, funding, and cooperative collection development.

POLICY DEVELOPMENT

Although technologies and courier services have changed tracking and movement of materials, many individual institutions have not reexamined rules governing use of materials. While the local users' requirements should take precedence, the needs of other users in the region and around the country should also be considered. Users' needs are like widening concentric circles; the nearest deserves and receives greatest attention, but the others should not be

ignored. For instance, lightly used serials might circulate between two campuses instead of being confined to one. Definitions of primary use should be rewritten to facilitate lending and borrowing. The "fair use" copyright rule should be examined for legal and practical standing. Five circulations within five years has been the standard practice—perhaps that logic should be tested.

Many large libraries fear that active participation in resource sharing will result in a reapportionment of access from the "haves" to the "have nots," from an inner concentric circle to an outer one. In some settings, this concern may be a legitimate one, worthy of serious consideration and study. However, the largest collections must expend resources to maintain their status. For instance, selecting and purchasing materials for a level-three collection is a fairly straightforward task, but seeking out and buying the materials that differentiate a level-five collection from a level four is an expensive task. Doing original cataloging for the distinctive level-five materials, much of them in foreign languages, costs a great deal more, too. In the same way, perhaps larger libraries will have to lend more to be able to borrow those items necessary to meet the more esoteric needs of their most specialized users.

FUNDING

The eloquent language surrounding resource sharing should find its corol-

lary in eloquent funding. Failing to register local ownership on a national bibliographic database in order to save money is not an acceptable strategy. The networks have generally committed themselves to low fees for holdings registration. Only a small percentage of the institution's budget is required to continue to support participation in a bibliographic utility. Adequate staff must be provided to give timely interlibrary loan service. Other operations, such as cataloging, marking, and shelving, need to provide effective support.

COOPERATIVE COLLECTION DEVELOPMENT

Especially in resource-poor areas, cooperative collection development must become a reality. While collection prospectuses and shelf list counts have done much to identify areas of strength, this information seems to have had only a modest effect on establishing parameters for cooperation. As the definitions of different collective levels become more precise, their impact on actual practice should increase. Few states or regions can afford to support overlapping level-five collections in any area.

The tradition of resource sharing is proud but unrealized. New technologies make resource sharing one of the most challenging areas of librarianship. Policy, funding, and cooperative collection development must now rise to meet the level of technological promise.

GLORIANA ST. CLAIR

IN FORTHCOMING ISSUES OF COLLEGE & RESEARCH LIBRARIES

Resolving the Acquisitions Dilemma: Into the Electronic Information Environment
by Eldred Smith

ARL Directors: Two Decades of Changes
by Marcia J. Myers and Paula T. Kaufman

The Bottomless Pit Revisited
by Larry Hardesty

Subject Cataloging of Personality Tests
by Robert P. Jordan

Research Notes

Literature of Academic Libraries by John M. Budd

Automation in College Libraries

Richard Hume Werking

This article reports results of a survey of the "Bowdoin List" group of liberal arts college libraries. The survey obtained information about which automation modules were in place at the library and when they had been installed; the financing of automation and the impact on the library's budget; and library directors' views about several matters relating to library automation and the nature of the college library.



lthough library automation is a popular topic in the professional literature, as well as in conversations and conference

programs involving academic librarians, little has been done to provide overviews of the state of automation in academic libraries.¹ This article attempts to provide such an overview, albeit a cursory one, for thirty-five of the forty-two liberal arts college libraries in the "Bowdoin List" group.

A previous article, *C&RL* January 1991 issue, reported on collection growth and shifts in patterns of expenditures in this group of college libraries, comparing the findings with developments in research libraries. As a part of that same research project, I surveyed the college library directors in the winter and spring of 1989 about automation in their libraries.² Readers should consider that the data,

attitudes, and opinions reported here for the colleges are as of mid-1989.

COMPONENTS REPORTED

OCLC/RLIN

By 1982 all thirty-five college libraries responding to the survey had implemented the OCLC bibliographic network, with the exception of one that is using RLIN instead. The first of these libraries to adopt OCLC did so in 1967.

TABLE 1: OCLC/RLIN

First	1967
Third	1972
One-fourth	1974
Half	1975
Three-fourths	1978
Third most recent	1980
Most recent	1982

Richard Hume Werking is Director of Libraries at Trinity University in San Antonio, Texas 78212. He gratefully acknowledges the many contributions of Dorothy R. Williams, his administrative assistant at Trinity; financial support from Trinity and the Council on Library Resources; and the cooperation and interest of the "Bowdoin List" college library directors in the preparation of this study and the one published in the January 1991 issue of C&RL.

Online Circulation

In sharp contrast, only thirteen of the thirty-five libraries have acquired an online circulation system. The first of these was added in 1979, and the most recent in 1989, but only two before 1987. The table below demonstrates the recency of this adoption.

TABLE 2: ONLINE CIRCULATION SYSTEMS

First	1979
Second	1986
Third & Fourth	1987
Fifth through eighth	1988
Ninth through thirteenth	1989

On the other hand, by 1987 three-quarters of the 115 research libraries responding to the ARL Automation Inventory of that year (74 percent) had installed an automated circulation system.³

Online Acquisitions

A greater number of the college libraries, fifteen of them, have implemented an online acquisitions system, beginning in 1981. More than half of these libraries have acquired such systems during the past two years, as the following distribution shows.

TABLE 3: ONLINE ACQUISITIONS SYSTEMS

Number of Libraries	Year Acquired
2	1981
2	1982
2	1984
1	1987
6	1988
2	1989

By 1987, 74 percent of the ARL libraries had implemented automated acquisitions systems, exactly the same percentage as for circulation.⁴

Online Serials

Only ten of these college libraries own online serials systems—fewer than any other automated component—with the first one implemented in 1982 and the most recent in 1989, and only half of them implemented by 1988. Likewise, in 1987 fewer than half the ARL libraries, 42 percent, had online serials systems.⁵

Online Public Catalog

In marked contrast, twenty-one of the thirty-five college libraries (60 percent) have online public catalogs, eighteen of them acquired in the last three years and the first acquired as recently as 1983.

TABLE 4: ONLINE PUBLIC CATALOGS

Number of Libraries	Year Acquired
1	1983
1	1985
1	1986
5	1987
7	1988
6	1989

The directors at an additional thirteen of the thirty-five libraries expect to have an online catalog in operation within two to three years, and the other director expects one in three to five years. In 1987, seventy-one percent of the ARL libraries reported that they had installed online catalogs, compared with fewer than one-quarter of the responding college libraries.⁶

CD-ROM Technology

Twenty-six of the thirty-five responding college libraries presently have CD-ROM technology, the first of which was acquired as recently as 1986. The number of CD-ROM products ranges from one to seven per library.

FINANCING AUTOMATION

Financing Initial Costs

The college library directors were presented with a list of methods and asked:

"How has your library financed, or how do you expect it to finance, the *initial* cost of the [above] technologies?" The thirty-five respondents selected a total of 103 methods. The methods are indicated in descending order of occurrence in the table below.

**TABLE 5:
FINANCING INITIAL COSTS**

Method	Times chosen
Special one-time allocations from college or university administration	26
Special grants from private foundations	25
Operating funds [chiefly for OCLC and CD-ROM]	18
Special gifts or bequests from benefactors	17
Special government grants	7
As part of a building fund	4
Through cooperative purchasing	4
Other: "as part of college capital campaign"	1
Other: "fabulous discount...by vendor"	1

It is worth noting that the one option offered that was not chosen by any of the thirty-five respondents was "special user fees/charges," a method some university libraries have used to finance integrated online automation systems.)

Ongoing Costs

Directors were also asked: "How is your library financing, or how do you expect it to finance, the *ongoing* costs of these technologies?" Thirty-four directors identified fifty-six methods. (See table 6.)

Extent of Impact on Existing Library Budget

The college library directors were asked: "To what extent have the costs of automation been borne from within the library's budget, either from funds already in the budget or from funds that would otherwise have gone elsewhere

TABLE 6: METHODS/FINANCING ONGOING COSTS

Method	Times chosen
Operating funds	33
Special grants from private foundations	6
Special gifts or bequests from benefactors	5
Through cooperative purchasing	4
Special government grants	4
Special one-time allocations from college or university administration	3
Other: "discount"	1

within the library budget?" The responses, and the number of directors choosing them, are provided below. Thirty-three usable responses were received.

TABLE 7: AUTOMATION FINANCED THROUGH THE LIBRARY'S BUDGET

Response	Number
"Not at all"	20
"To a limited extent"	10
"To a great extent"	3

The three directors choosing "a great extent" reported that the total impact was \$39,500, \$30,000, and \$8,767. Only one of these three libraries, that which reported \$30,000, has an online public catalog. The library reporting the \$39,500 figure has recently invested in a number of CD-ROM products and workstations. Of the ten directors selecting "a limited extent," nine could provide a specific dollar impact, as follows: \$50-75,000, \$50,000, \$35,000, \$25,000, \$24,000, \$20,000, \$6,000, \$3,000-5,000, and \$2,000. Of these ten libraries, all but two have installed online public catalogs. Of the twenty library directors responding "not at all," eleven of their libraries have online public catalogs; one of these directors, whose library had recently installed an integrated system, added the observation "Thank God!"

INTERVIEW RESPONSES

At the twenty-two libraries visited, I learned a great deal about several closely related issues involving the introduction of (what was for them at least) 1980s automation: the online public catalog and the other components identified above. These issues were the perceived benefits of automation, the willingness of the directors to reduce acquisitions or staffing levels in order to automate their libraries, perceived trade-offs involving automation, and the directors' perceptions about the changing nature of the college library. Twelve of these libraries already had automated catalogs, one had selected an integrated system, while another four were actively involved in the selection process.

Benefits of Automation

Twenty-two of the directors responded to the question "What do you consider the benefits of automating?" (This was indicated to be a level of automation beyond OCLC and online database searching.) Listed below are the benefits that were offered by two or more of the respondents, in descending order of occurrence.

- Thirteen of the directors included better searching of the catalog by patrons as an important benefit.
- Six mentioned efficiencies in various clerical operations. One commented, "I'm tired of maintaining a card catalog, thank you," while another observed that "We used to spend tens of thousands of dollars a year for filing cards; we're now using people to better advantage."
- Another six offered the sharing of library resources through consortia as a benefit. As one of them put it, "Networking is the reason for automating, not just the library asking for money to fancy up its card catalog."
- Five directors referred to automation's either enabling or facilitating shared acquisitions and shared collection development with certain nearby libraries.

- Five respondents mentioned the possibility of remote searching of the catalog by faculty from their offices, or by others.
- Another five referred to obtaining management information from circulation statistics about which parts of the collection were being used.

Four of the directors brought up the library's image vis-à-vis other libraries and its image on the particular campus. One of them said she occasionally heard comments from students to the effect that "My home town library has an online catalog; why doesn't this one?" Another director observed that the library's position on the campus had been enhanced. A third noted: "The idea that the college has managed to do something of this sort for its students has helped donations from younger donors (a 'cradle to the grave' view). They identify with the library as an up-and-coming place. We've implanted ourselves in their minds this way; normally we don't hear from them until they're out about twenty-five years."

A separate image issue offered by three directors was that library automation is a factor in admissions competition with other institutions, to gain "a competitive edge in the liberal arts marketplace," as one of them put it. Two respondents in environments with several branch libraries pointed to the advantage of "getting everything into one database." Two more directors were quite interested in the prospect of owning and mounting additional databases. Another two respondents considered library automation an important factor in the library's increasing role in coordinating information on campus.

A benefit explicitly offered by only one director is nonetheless worth repeating. According to him, a very important benefit was the opportunity for weeding the collection: "I'm one librarian who's trying not to build another building."

Acquisitions and Staff Dollars versus Automation Dollars

During the interviews, I asked the directors: "Would you reduce acquisitions in order to automate?" Of the twenty-

one usable responses, eleven were "no," seven were "yes," two were "no initially but yes later," and one director was undecided. While the directors were quite protective of acquisitions dollars, they were even more protective of staff dollars. In response to the question "Would you reduce staff (including student workers), or reduce pay increases in order to automate?" sixteen of the directors said "no," three replied with a highly qualified affirmative, and one did not know.

Trade-offs Involving Automation

All the directors interviewed thought that the advantages that had been brought or would be brought by the introduction of automation outweighed any disadvantages. At the same time, some of them perceived problems that they were encountering or likely would encounter in their libraries as a result. Some of their observations are given below.

The biggest problem is the online catalog itself and the use of it. Subject searching isn't easy. The user is given so much more than he or she can handle, and the catalog isn't used well. Also, records need to be cleaned up. The headings themselves are problematic, and there are inconsistencies in how our several institutions have treated headings. But I'd rather have these problems than the problems of the card catalog.

Trade-offs with automation other than cost? Well, there's somewhat less attention by reference people to the traditional user, sacrificing the traditional user; we don't give up an online search to help someone at the reference desk because we get instant gratification from the online search process. Also, online searching is more fun. But I don't think things are necessarily being lost.

We have the worst card catalog known to man; at...we had a great card catalog. Automation is forcing us to be disciplined, and it will cost the library some money, maybe \$50,000 a year in economies: acquisitions, travel budget, maybe staff.

I don't think the college libraries have suffered much, so far, in terms of the costs of introducing automation. The larger campuses have suffered more in that they've had to eat into their own money.

Automation is a costly thing that provides different services. It's hard to compare what you get with what you were getting.

By putting our catalog into a local area network, we may lose contact with the faculty, especially if that is combined with having materials delivered to their offices. Presently, this is how we see the faculty, when they come to the library.

The big thing is the dollar cost, but there's also the political cost. Luckily here the introduction of automation has been tied to a new building, although I did get \$50,000 more annually for maintenance. God help me if I need to ask for a new reader-printer; I've used up my chips and don't have any for awhile. This is true not just of automation, but would be true for any big expense, like a building. It's like the syndrome among the state legislators in [the state capital]: "We did health last year."

Is the Nature of the College Library Changing Fundamentally?

The directors were asked, "Is the nature of the college library changing very much, changing fundamentally, at your institution and around the country?" Eight of the directors believed that it was, six believed it was not, and the rest of the responses were mixed.

Not fundamentally. Librarians are more service-oriented, whereas they used to be collection oriented.

Certainly the way we do business is changing. The basis of what libraries do is pretty much the same—provide information. But we don't have to own as much of it, and we have other ways of getting at it.

Not really. Automation and various media introduce a different way of working, but that doesn't matter much; people adapt and come to take

it for granted. Alumni might find it bewildering and think that we're already in the twenty-first century.

Yes, it is changing fundamentally. It's splitting in half, into two types of libraries. Librarians are still responsible for information services: census tapes, books, sound CDs, slides, scanners, satellite dishes, microforms; and then there is the museum side, the special collections where people are concerned about the book as an artifact, displays, preservation, etc. The biggest change I've noticed in librarianship is the tendency of the administration to want to expand the definition of the library. The language laboratory is now a part of it. There is a whole new set of problems: satellite TV, interactive video, CAI, etc. I worry about how to encourage the faculty and educate them. The satellite dish will place a lot of demands on us for taping programs. Students are wanting to start a new TV station, and work with me and the AV librarian. Unless we expand this way and take on responsibility for additional forms of information, we'll die.

Yes, and I think it's the nature of the college librarian. The most notable change in my professional life is getting librarians out of clerical detail, and into administrative matters, teaching (like bibliographic instruction), and more reference work. When I came to this institution, there wasn't much demand for reference help. There was not even a separate reference desk; the librarians got behind the circulation desk and did more circulation work, as circulation supervisors. Librarians are also taking on a larger role in collection development, which used to be faculty driven.

CONCLUSIONS

The introduction of online library automation into this group of colleges has lagged behind the same phenomenon in the ARL libraries. Nevertheless, during the 1980s automation caught on rapidly among this group, to the point where three-fifths of the thirty-five reporting libraries had installed online catalogs, or were to have installed them by the end

of 1989. Perhaps in part because of the speed with which automation has taken hold, the associated costs of computer hardware and software, some maintenance, and a good deal of retrospective conversion have generally come from outside the library budget, either from the college administration or from outside the college altogether. In fact, perhaps it is the externality of the funding that may explain some of the rapidity with which automation has been and is being adopted in these college libraries. In contrast, the impression lingers that because of the much greater automation costs in the research libraries and the more formidable task of retrospective conversion, these institutions are more frequently obliged to absorb these costs from the library budget, often by leaving salary lines open. Another factor may be that many of the ARL libraries are in publicly supported universities and hence have received relatively few grants from foundations to support automation.

An important question is the extent to which the college libraries' current budgets will remain relatively immune from the future costs of upgrading and replacing computer hardware and software. Perhaps the percentage of expenditures for materials will begin to decline. Studying the data from the twenty-one libraries that have installed an online catalog, or expected to install one by the end of 1989, gives no indication that the materials budget has yet suffered as a result. The median percentage of expenditures for materials among these libraries, both in 1986-87 and in 1987-88, was thirty-seven, one point below the median for the larger group; and in 1988-89 it had risen to thirty-eight percent. Compared with their own percentages ten years before, in 1976-77, eleven of these libraries had higher percentages in 1986-87, nine had lower, and one showed no change. For 1987-88 (N=20), ten of them show a higher percentage than the previous year, eight show a smaller, and for two there was no change. For 1988-89 (N=20), seven of these libraries show a higher percentage

than in 1987-88, seven show a smaller, and six show no change.⁷

College library directors often see trade-offs involving library automation, but none of them believes that the disadvantages outweigh the advantages. Although the college library directors disagree about how "fundamental" the changes are, they perceive that academic libraries are changing the ways in which they operate. An important question concerns the role of the librarian in the more electronic environment. Many of the directors anticipate a greater degree of librarian involvement with students. To the extent that they are correct, and to the extent that relatively more dollars will go to pay for more librarians, or for

higher salaries to attract or retain capable librarians with high degrees of energy and skill, it is quite possible that materials expenditures will decline proportionately. This trend would run exactly counter to the recent plea by Jerry Campbell, university librarian at Duke, that "materials/access" should grow to 50 percent of expenditures and that salaries/wages should drop to 33 percent. In Campbell's opinion, "we simply cannot provide enough people to answer all the questions."⁸ One problem with his construct, however, as with much of the current discussion about "access," is that library staff, like all other elements in the library operation including the collection, are there to provide "access."

REFERENCES AND NOTES

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2. Richard Hume Werking, "Collection Growth and Expenditures in Academic Libraries: A Preliminary Inquiry," *College & Research Libraries* 51:5-23 (Jan. 1991). This article provides details about my research via questionnaires and interviews. For additional information, including additional responses garnered during my interviews with library directors, and a copy of the survey instrument, see *Collection Growth, Expenditures, and Automation in Academic Libraries: A Preliminary Inquiry* (Educational Resources Information Center, Document #318482, 1990).
3. OMS, ARL, *Automation Inventory* (1987), p.7.
4. *Ibid.*
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8. Jerry D. Campbell, "Academic Library Budgets: Changing 'The Sixty-Forty Split,'" *Library Administration & Management* 3:79 (Spring 1989).

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Longitudinal Study of Scientific Journal Prices in a Research Library

Kenneth E. Marks, Steven P. Nielsen,
H. Craig Petersen, and Peter E. Wagner

The investigators conducted a benchmark longitudinal study of scientific journal prices for a land-grant research university to study the determinants of price increases over time. The study covered the period from 1967 to 1987, and included journal titles from a variety of publishers, disciplines, and countries. Information was collected about many factors that could influence serial prices. It was determined that inflation and greater journal length explained most of the increase in journal prices. However, it was also found that prices of journals from commercial publishers increased much more rapidly than those from nonprofit publishers over the study period.



Increases in the prices of professional journals over the last decade have probably elicited more attention from

librarians and the academic community than any other single issue in library services. This issue was one of the principal concerns at the 1988 New Orleans and 1989 Dallas American Library Association meetings, and it has reached the U.S. Congress in the form of a Congressional Research Service Report prepared by Richard E. Rowberg, chief of the Science Policy Research Division.¹ A recent report by the Association of Research Libraries (ARL) vividly describes the situation as having "spiraled out of control".²

Review and commentary on journal pricing are regular and substantial: A

number of publications provide annual updating of journal price changes for the previous year by broad subject category.³ Other studies offer analyses of price increases by specific publishers within specific disciplines.⁴ A third group describes processes for reducing journal holdings and the effects of reductions on the library and its patrons.⁵

While the above-mentioned literature is extensive, little involves lengthy statistical analysis. Often the articles are anecdotal and descriptive. Apart from the ARL report, the few quantitative studies done have been limited to specific subjects and have covered rather short time intervals with a restricted set of journals.⁶ Except for the ARL report, we have been unable to identify benchmark studies examining the problem for a large

Kenneth E. Marks is Director, Academic Library Services, East Carolina University. Steven P. Nielsen is Fiscal Officer, Merrill Library and Learning Resources Program, Utah State University. H. Craig Petersen is Professor, Economics, Utah State University. Peter E. Wagner is Provost, State University of New York at Binghamton.

number of journals and, at the same time, a sufficiently long period of time to allow generalization about trends in pricing policies.

The present work is closely related to the ARL project.⁷ However, some differences make these two reports complementary rather than redundant. The purpose of the ARL study was "to identify factors contributing to the rising costs and to suggest possible remedies."⁸ Our study was undertaken to create a mechanism that would provide better price information that could be used for decisions on the acquisition and retention of journals. Both studies reached conclusions that are, if not identical, entirely compatible.

The ARL study focused on four major publishing firms, one each from the Netherlands, West Germany, England, and the United States. A sample of 167 titles was drawn using the publishers' catalogs. The sample was selected to ensure that five disciplines were covered: physical sciences, medicine, biology, earth sciences, and technology. Data were collected for the years 1973-1987.

Compared with the ARL reports, the present study involves a much larger and broader sample of journals. It attempts to hypothesize possible causes of journal price increases and to ascertain from an examination of actual price data whether any causes could be empirically verified. The research consists of a longitudinal examination of the prices of a representative collection of scientific, technical, and agricultural journals from 1967 through 1987.

DATA COLLECTION

The data used in this study were assembled by first selecting a random sample of 1,000 titles from the 1971 Utah State University Library Catalog of Serials. The 1971 Catalog of Serials was used because it was the first organized list of serials for the library and provided the most accurate list of serials being received in 1967. The investigators did not attempt to confine the study to a particular group of publishers as was done in the ARL study. The titles selected repre-

sented publishers from the private, institutional, academic, governmental, and societal sectors. Nine countries were represented in the sample: the United States, England, the Netherlands, France, Switzerland, West Germany, Australia, Japan, and Austria.

Titles included the physical, biological, and mathematical sciences; agriculture; engineering; technology; natural resources; medicine; general science; and a small, unclassified category. A total of forty-seven different disciplines was represented. The authors determined the focus of this study should be scientific journals because of the attention they were receiving from librarians. A second study is under way to examine a similar set of journals in the humanities, arts, and social sciences held in the Utah State University Library collection. From an initial number of more than 1,000 titles, more than half had to be eliminated for a variety of reasons. Approximately 300 titles were removed from consideration because they had ceased publication or the library had canceled its subscription during the period 1967 to 1987. Another 350 titles were withheld from the analysis because of missing, incomplete, or unavailable data. The authors wanted to ensure the results were not distorted by the missing data elements. The 370 titles analyzed in this study had been held by the library for the entire time period, and for each year we verified the number of pages, number of volumes, number of articles, cost to a U.S. library subscriber, and in the cases of foreign titles, cost to the library subscriber in the country of origin. Work continues on acquiring the missing data and verifying data elements that were determined to be unreliable for the journals not included in the final sample.

Table 1 presents characteristics of the journal sample. The largest number represents the biological sciences. About 67 percent of the journals were of U.S. origin, with titles from the United Kingdom ranking second in total number. About 40 percent of the journals were published by U.S. or foreign commercial firms; the remainder came from U.S. or

foreign institutional, academic, governmental, and societal sources.

Many factors can affect the levels and rates of increase in journal prices. The following determinants of journal prices were examined: length (i.e., number of pages published annually), inflation in the nation of origin (i.e., the country in which the journal was published) for foreign publishers, inflation in the dollar, differential pricing between nation of origin and the United States, pricing practices of the profit-making versus noncommercial publishers, and price variations by discipline.

TABLE 1. CHARACTERISTICS OF THE JOURNAL SAMPLE

Discipline	Number	Percentage
Physical Sciences	96	26
Biological Sciences	158	43
Engineering	51	14
Mathematical Sciences	22	6
Other	43	11
Total	370	100
Publisher Type:		
U.S. Commercial	72	19
U.S. Noncommercial	178	48
Foreign Commercial	76	21
Foreign Noncommercial	44	12
Total	370	100
Nation of Origin		
United States	249	67
United Kingdom	59	16
West Germany	21	6
Netherlands	19	5
All Others	22	6
Total	370	100

Ulrich's International Periodical Directory was used to verify the name and type of publisher for each journal in the sample. Students, after training, collected the following additional data by direct examination of the individual journal

volumes: presence or absence of advertising; pages charges; use of photos, charts, graphs, and color; copyright ownership; whether the journal is a translation; self-indexing; frequency of publication; number of volumes per year; number of pages; and number of articles. Although we had wanted to include subscription or circulation data, they were generally unavailable and, when available, suspect.

Information on prices presented its own challenges. We did not use *Ulrich's* pricing data because they were considered unreliable. Due to the lead-time required to assemble the data for *Ulrich's* publication, pricing was often six months to a year out-of-date. Instead, Utah State University Library serial payment records, Faxon pricing information, and prices found in the journals themselves were used. We believed that prices paid by the library reflected the prices paid by other academic libraries because of the variety of subscription mechanisms used by the Utah State University Library. Even with several sources of pricing information, subscription data for foreign titles were often difficult to locate because of the "bill later" approach. Pricing data for the early years in the study were the most difficult to acquire and verify. Library serial payment information often did not exist or was recorded in so cryptic a manner as to be unusable. Because of these factors, a number of titles were eliminated from the study; a similar experience was reported in the ARL study.

For each foreign title, we attempted to obtain prices in the currency of the nation of origin, as well as in U.S. dollars. Unfortunately, these figures were not always provided in the physical volumes. Currency exchange rates were used to convert prices of foreign journals to U.S. dollars. Adjustments for inflation were made using price indices for each country. Data on inflation rates and currency exchange data were obtained from *The U.S. Statistical Abstract*, *The Europa World Yearbook*, and *United Nations Statistical Yearbook*.

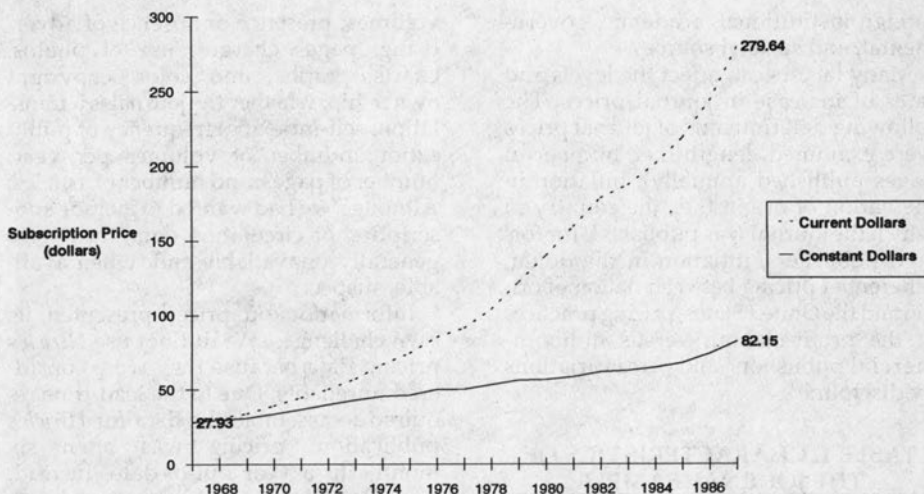


Figure 1. Trends in average subscription price: Constant and Current dollars. (For U.S. subscribers)

RESULTS

A comparison of annual subscription prices to a U.S. library buyer for the twenty-year period 1967–1987 in current and constant (i.e., inflation adjusted) dollars is shown in figure 1. Although the average current dollar price has increased ten times during the period, the constant dollar price only tripled. Clearly, general inflation is the single most important cause of journal price increases during the last twenty years.

To determine how much of the price increase over time was due to changes in journal length, we computed the average price per page in current and constant dollars. The results are shown in figure 2, which does indicate some effect due to journal length when compared to figure 1. In current dollars, the cost per page was six times greater in 1987 than in 1967, while in constant dollars one page in 1987 cost about 78 percent more than its cost in 1967. Thus, inflation in the dollar and changes in average journal length accounted for most of the overall cost increase of ten times between 1967 and 1987. The remainder of our study dealt with possible causes of

the residual price increase over time—about 78 percent between 1967 and 1987.

Differential pricing by publishers of foreign journals is one possible explanation for the residual price increase. Prices charged to U.S. libraries for foreign journals have always been higher than prices for the same journals in the country of publication. Some differential would be expected in order to cover shipping costs. But it has been alleged that in recent years some foreign publishers have sharply increased prices in the U.S. relative to those in the nation of origin. This proposition was examined using our data set. For all foreign serials in the sample for which the data were available, we converted the U.S. dollar price for each year to the currency of the country of origin for that year. We then calculated the ratio of the U.S. price to the country of origin price. The average for the journals in the sample is shown in figure 3. Although rather large fluctuations appear, no clear trend emerges over the twenty-year period. The ratio was about 1.3 in 1967, that is, the price in the U.S. averaged about 30 percent more than the price in the country where the journal was published. The ratio fluctu-

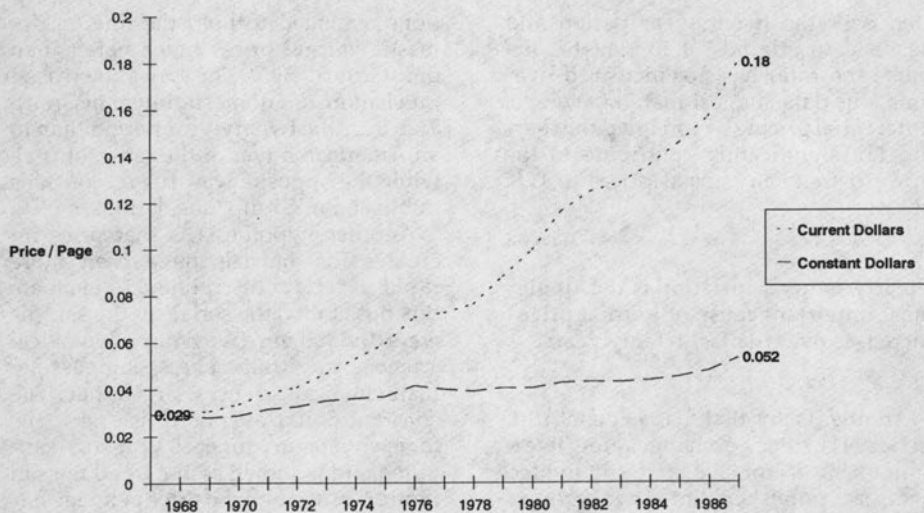


Figure 2. Trends in average price per page: Constant and Current dollars. (For U.S. Subscribers)

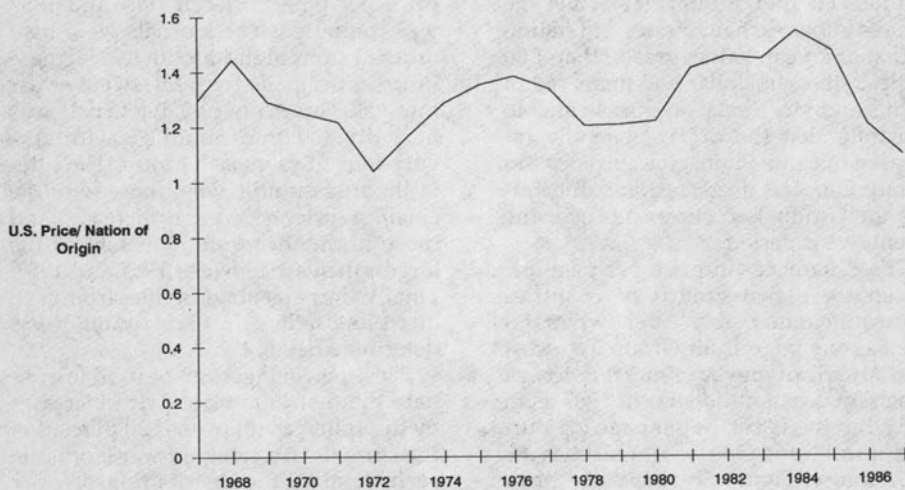


Figure 3. Differential Pricing: average price to U.S. Library divided by average price to library in nation of origin.

ated over the twenty-year period and declined to around 1.1 in 1986-87. Because the ratio has not increased over time, our data suggest that, on average, differential pricing by foreign publishers did not significantly contribute to the upward trend in journal prices to U.S. libraries.

Clearly, general inflation is the single most important cause of journal price increases over the last twenty years.

Another factor that may explain price trends is currency exchange rates. To examine this factor, we first subdivided overseas publishers into two groups. Group One included Australia, France, and the United Kingdom, while Group Two comprised Austria, Germany, Japan, the Netherlands, and Switzerland. These groups were delineated based on the behavior of the dollar against their currency. As shown in figures 4a and 4b, the exchange rate for each country was normalized to 1.00 for 1967. Thus the figures show exchange rates in relation to that base year. Values greater than 1.00 indicate that the dollar had increased in value, and vice versa. Figures 4a and 4b illustrate that the dollar generally increased in value against the currencies in Group One and decreased in value versus the Group Two currencies over the twenty-year period.

The differences in price per page between these two groups of countries were quite remarkable. As shown in figure 5a, one page from Group Two cost the American buyer almost twice as much (in constant dollars) in 1987 as in 1967. But the 1987 cost per page for journals from Group One was three times the 1967 figure. Figure 5b shows the price per page to a buyer in the nation of origin, in the inflation adjusted currency of that nation. Here the difference is even more dramatic. For a Group One buyer, the 1987 price per page was 1.4 times the price in 1967; however, the corresponding ratio for Group Two domestic buyers was 4.7 times. Evidently, Group One na-

tions managed to hold the line on domestic journal prices much better than did Group Two. The price increased much more to a domestic buyer in Group Two over the twenty-year period than to an American buyer of the same journal, while the opposite was true for journals published in Group One nations.

Another hypothesis is that price increases for journals have been more rapid in certain disciplines. To evaluate this possibility, the serials in the sample were divided into five groups: biological sciences, physical sciences, engineering, mathematical sciences, and other. The constant dollar average price per page for each category for each year was computed and is shown by the trend lines in figure 6. Although the price per page has increased in each of the five groups, there is no clear evidence that the increases have been more rapid in one category than in the others.

Another way to analyze the data is by examining the distribution of price increases by discipline. For each of the journals in the sample, the increase in price per page between 1967 and 1987 was computed. The journals were then ordered from highest to lowest increase in price per page over the twenty-year interval. This array of 370 journals was next divided into quintiles, with seventy-four titles in each group. The titles in the first quintile were those with the smallest price per page increase, and those in the fifth quintile exhibited the largest increase between 1967 and 1987. Finally, the percentage of titles from each discipline falling in each quintile was determined.

These percentages can be used to evaluate the distribution of price increases by discipline as follows. If 20 percent of the journals in a category were found in each quintile, the distribution of price increases for that category would be identical to that of the entire sample. In contrast, if a substantial percentage of titles for a discipline appeared in the fifth quintile (those with the largest price increases), that discipline could be identified as contributing disproportionately to higher prices.

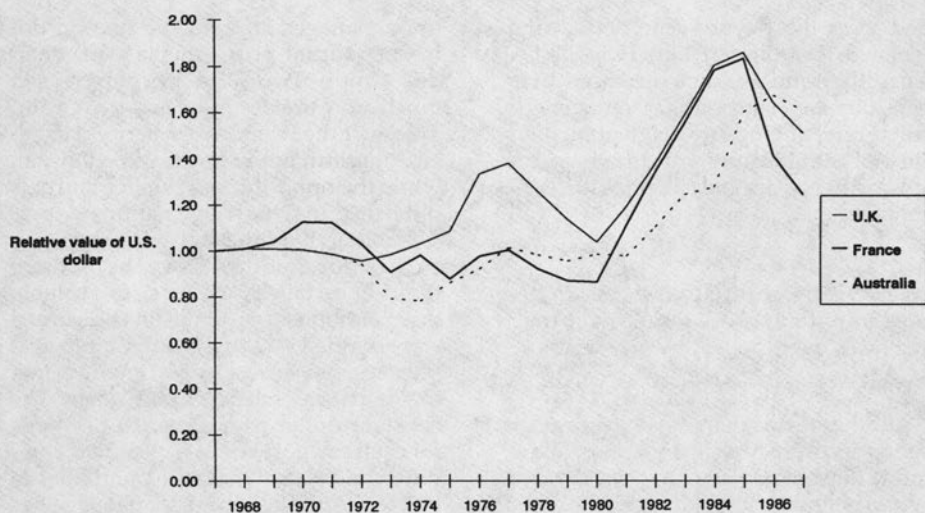


Figure 4 a. Group I Comparison of exchange rates from 1967 to 1987. (Note 1967=1.00)

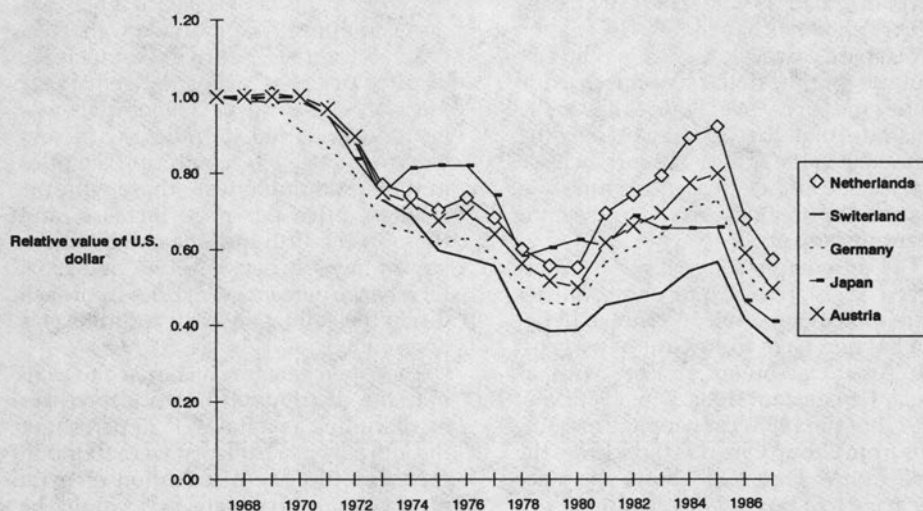


Figure 4 b. Group II Comparison of exchange rates from 1967 to 1987. (Note 1967=1.00)

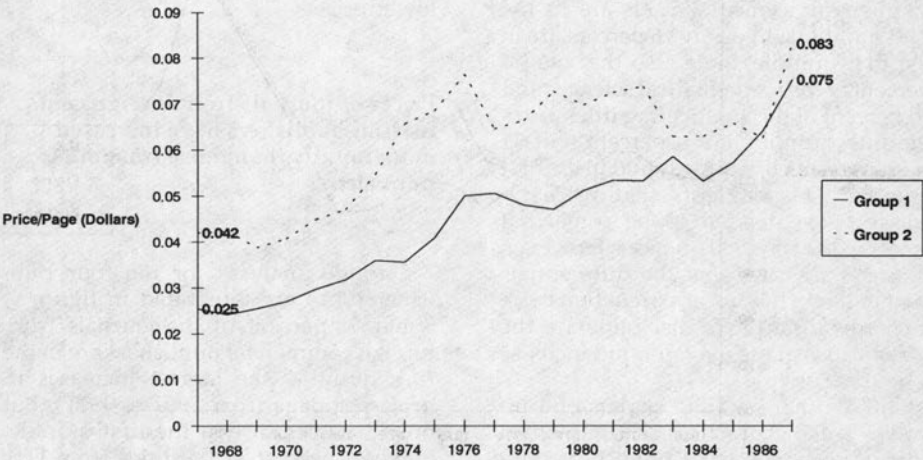


Figure 5 a. Comparison of average Price per page, in constant dollars, to U.S. buyer, for two groups of countries: Group One includes Australia, Germany, Japan, Netherlands and Switzerland.

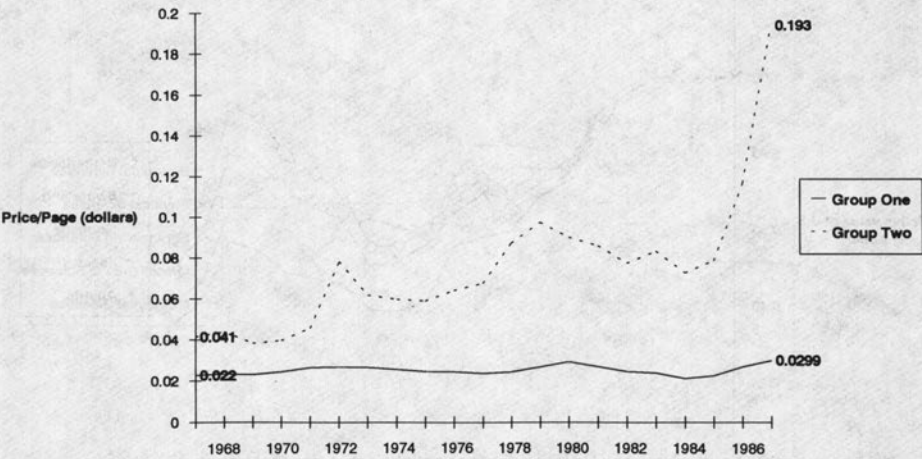


Figure 5 b. Comparison of average price per page in constant local currency for two groups of countries: Group One includes Australia, France and the United Kingdom; Group Two includes Austria, Germany, Japan, Netherlands and Switzerland.

Figure 7 shows the quintile distribution by discipline. Note that 28 percent of physical science journals are in the fifth quintile while only 16 percent are in the first quintile. Note also that only 4 percent of the mathematical sciences and 18 percent of the engineering titles are in the fifth quintile, but 9 percent and 31 percent respectively are found in the first quintile. This suggests that price increases have tended to be somewhat larger in the physical sciences. However, figure 7 indicates that the differentials are not large. It is not apparent that price increases in any one discipline are the major cause of the overall rapid increase in journal prices.

Still another possible explanation involves pricing practices of commercial versus noncommercial publishers. Figure 8 displays constant dollar average prices per page for journals categorized by publisher type. Foreign journals provided by commercial publishers have been, on average, more expensive throughout the twenty-year period than were the other three publisher categories,

while serials from U.S. noncommercial publishers have been consistently lower priced.

Prices of journals from foreign commercial publishers have increased more rapidly than those from other publishers.

Quintile analyses for the four publisher types are illustrated in figure 9. Some 44 percent of the journals from foreign commercial publishers are in the fifth quintile (the largest increases in price per page from 1967 to 1987), but only 3 percent are in the first quintile. Only 20 percent of the titles from U.S. commercial publishers are in the fifth quintile, with 44 percent in the two quintiles depicting the smallest price increases. The implication is that foreign commercial publishers are responsible for a disproportionate share of journal price increases.

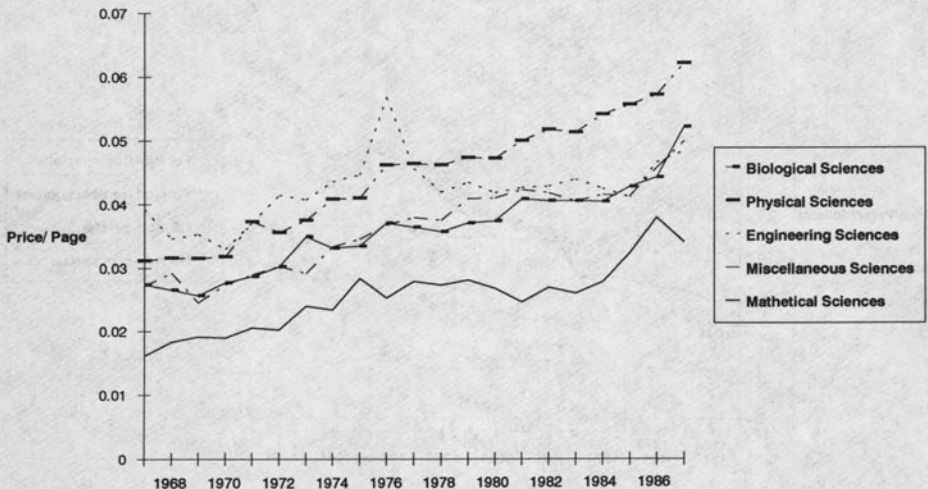


Figure 6. Trends in constant dollar average price per page: By discipline. (For U.S. subscribers)

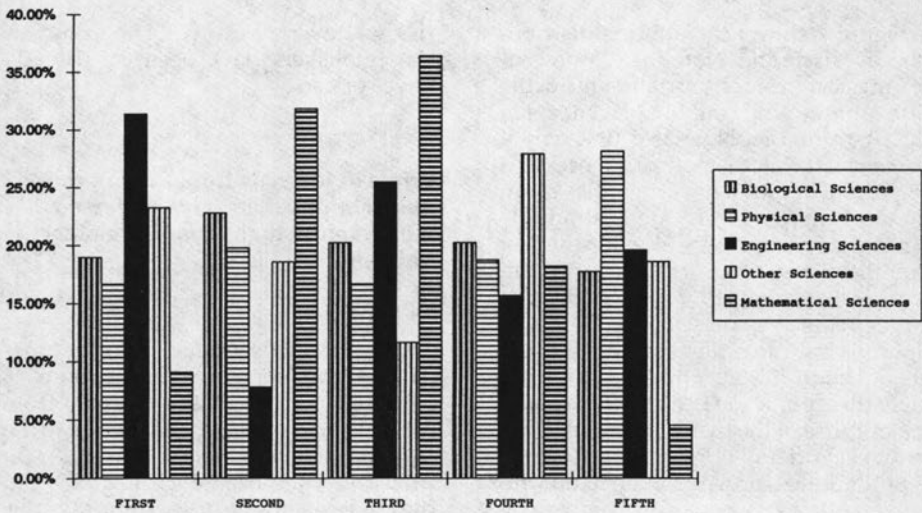


Figure 7. Increase in price per page between 1967 and 1987: Discipline. (For U.S. Subscriber)

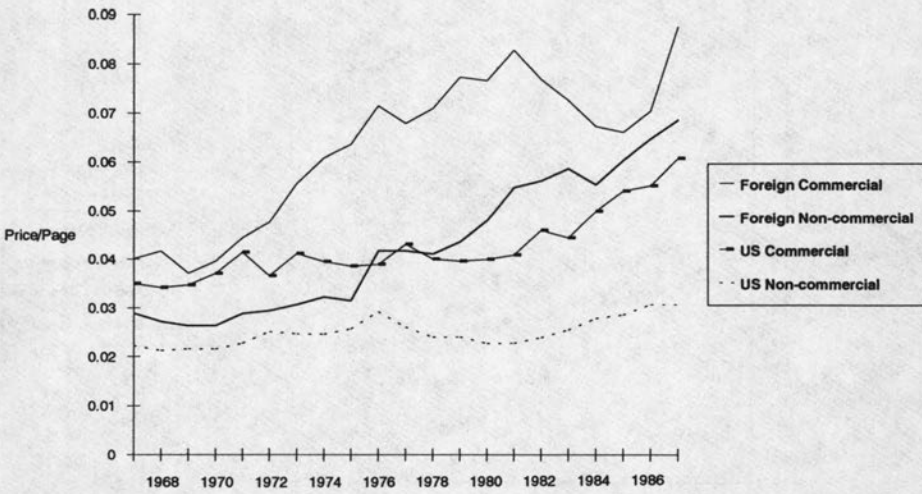


Figure 8. Trends in constant dollar average price per page: By publisher type. (For U.S. subscribers)

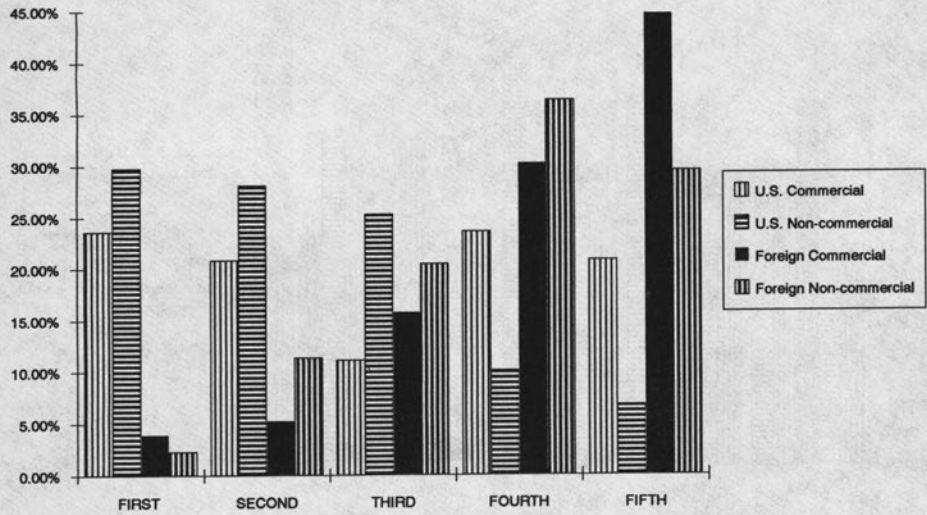


Figure 9. Increase in price per page between 1967 and 1987: Quintile distribution by publisher type.

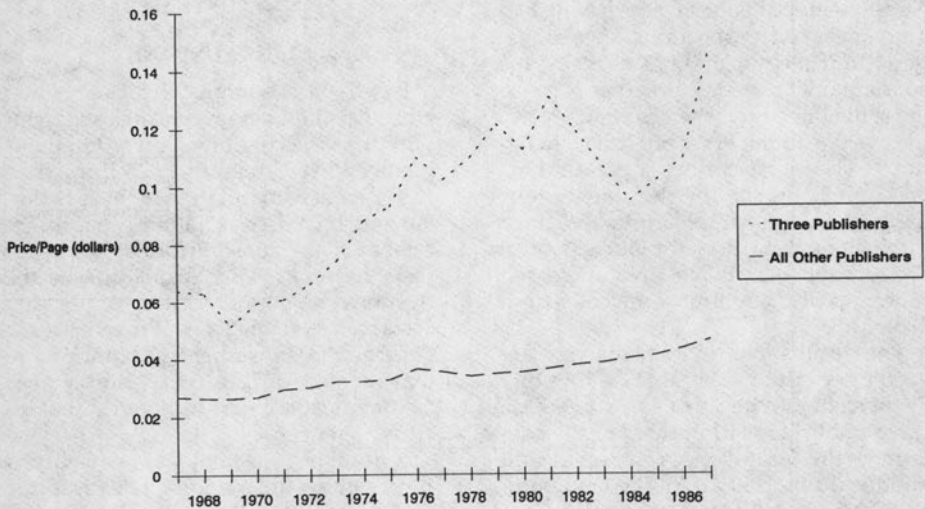


Figure 10. Trends in constant dollar average price per page: Three Publishers vs. All Other Publishers. (For U.S. Subscribers)

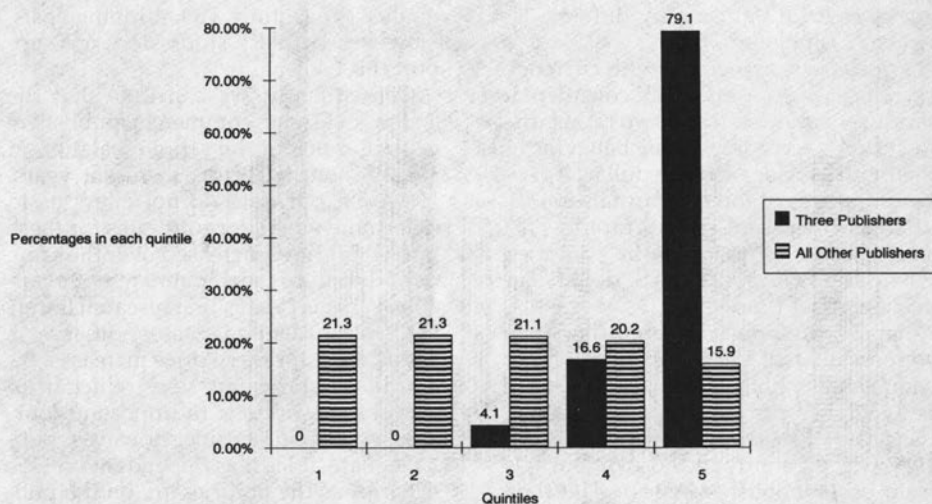


Figure 11. Increase in Price per Page between 1967 and 1987: Quintile distribution for Three Publishers vs. All Other Publishers. (For U.S. Subscribers)

A recent study by Richard M. Dougherty and Brenda L. Johnson identified three foreign commercial publishers as having had a significant effect on journal price escalation.⁹ To relate our findings to theirs, the constant dollar average price per page for the same three publishers is compared to the average for all other publishers in figure 10. The average price per page in 1967 was much higher for the twenty-four journals in the sample from the three publishers. But prices for journals from these publishers have also increased more rapidly over time, especially from 1967 to 1987.

The results of quintile analysis are even more striking. Figure 11 shows that 79 percent of the journals from these three publishers fall in the quintile containing the largest price increases and another 16 percent are in the next quintile. Thus 95 percent of the titles from these three foreign commercial publishers are in the top 40 percent of price increases for the entire sample. It is noteworthy that the same three publishers were among those studied by ARL, which concluded that their price in-

creases could not be explained by increases in producer cost.

CONCLUSIONS

Based on a sample of 370 scientific journals, the average journal subscription price to U.S. libraries was ten times greater in 1987 than in 1967. But, when the influences of inflation in the U.S. dollar and increases in journal length are removed, the constant dollar price per page has risen 78 percent during the twenty-year period. Unless publishing costs increased much faster than prices in general (the Consumer Price Index more than tripled during the period), other factors must account for the residual increase over time.

A number of factors were considered as possible explanations. One was the price differential charged to U.S. buyers for foreign journals. Some differential is justified by shipping costs. But we found no evidence that the differential has increased over time. Price increases were also analyzed by discipline. Our data do not indicate that rates of increase in price

per page have significantly differed between disciplines.

Price effects associated with currency exchange rates were also considered. Producer nations fall into two rather distinct types according to the behavior of their currency against the dollar. As expected, prices of foreign journals to U.S. libraries increased more rapidly for those serials originating in countries where the value of the U.S. dollar had declined over time.

Finally, the effects of publisher type were evaluated. We found that foreign commercial publishers charge substantially higher prices per page and that their rate of increase between 1967 and 1987 was greater than those of journals from other publisher types. The data indicate that the three foreign publishers studied by Dougherty and Johnson and ARL increased their prices per journal page much faster than did other publishers. In constant dollars the average price per page for the twenty-four journals in the sample from these three publishers increased by \$0.055 during the twenty-year interval, while the average for the 346 journals from other publishers increased by only \$0.019 during the same period.

Library managers should seek ways to exert more effectively their market power as clients in dealing with commercial publishers.

The finding that prices and rates of increase have been higher for journals from foreign commercial publishers does not necessarily imply price gouging, because many journals from non-profit institutions or societies are subsidized. It is also possible that the foreign firms tend to publish journals with higher production and distribution costs because of color, photographs, art,

quality of printing, and shipping costs. However, the ARL study does not support this conjecture.¹⁰

Consequently, we conclude that the actions of foreign commercial publishers explain much of the rapid escalation in average journal prices in recent years. However, our data do not allow us to determine whether profit rates for these publishers have increased over the same period. Indeed, such data are not available. What is clear is that research libraries in the United States deserve a justification for these price increases. Individual libraries are very reluctant to cancel subscriptions to important journals. At the same time, however, publishers are at least as dependent on U.S. libraries as the libraries are on the publishers. In the future, library managers should seek ways to exert more effectively their market power as clients in dealing with commercial publishers. When publishers announce price increases that exceed the general rate of inflation or are substantially greater than the industry average, library managers should use the forums of professional meetings, trade publications, and individual correspondence to indicate their concerns and to request justification of the publisher's actions.

Librarians should remember that publishers, especially commercial publishers, are in business for profit, and in the final analysis, their actions will ensure the attainment of this objective. The circumstances of the information economy have provided publishers of scientific journals with an extremely attractive opportunity to enhance their position in the marketplace. Nothing is fundamentally wrong with this. However, librarians must remember they have the power to make choices among publishers and to seek existing alternatives or assist in the development of alternatives to the traditional systems for distributing scholarly information.

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From Authority Control to Informed Retrieval: Framing the Expanded Domain of Subject Access

Prudence W. Dalrymple and Jennifer A. Younger

The expanding domain within which subject searching takes place creates new challenges in providing effective subject access. Three changes in the domain of subject access are described. The purpose of this article is to propose a broader framework within which to analyze barriers to effective subject access and to propose directions for research and action. Methods of facilitating subject access are categorized as end points on a continuum: authority control, controlling the results of indexing, and informed retrieval—informing the process of searching. Identification of these two categories signals a paradigmatic shift toward a reliance on both authority control and informed retrieval to facilitate subject access.



This article reexamines some of the methods and approaches taken to provide subject access, especially in light of the many technological changes that have occurred in academic libraries over the past several years. The approaches are not necessarily new; some of them were proposed several decades ago. However, just as Vannevar Bush's dream of a MEMEX seems to be embodied in today's sophisticated workstations, the growing availability of integrated information systems, networks, and artificial

intelligence may indicate that the ideal solutions which were once posed only as hypotheses are being developed today and will be adopted tomorrow. Solutions to problems previously limited by technical constraints can now be realized and brought to bear in today's environment.

A central problem in academic libraries today is subject authority control. Subject authority control has generally been considered the domain of catalogers rather than reference librarians, of technical services departments rather

Prudence W. Dalrymple is an assistant professor at the Graduate School of Library and Information Science, University of Illinois at Urbana-Champaign, Urbana, Illinois 61801, and Jennifer A. Younger is an assistant director of Central Technical Services for the General Library System of the University of Wisconsin-Madison, Madison, Wisconsin 53706. The authors wish to thank our colleagues who provided thoughtful comments on earlier drafts of this paper; we particularly wish to acknowledge F. W. Lancaster and Pauline Atherton Cochrane for their valuable assistance in helping us place our ideas in a historical context.

than public services departments. In an online searching environment, the capabilities of keyword searching and Boolean operators have enhanced subject retrieval by freeing searchers from the necessity of knowing the exact form of a subject heading and giving them the power to combine the terms that bring together the concepts of interest. Before the widespread availability of online information retrieval, indexers, not librarians and library users, used thesauri. With the vision of the electronic "library without walls" rapidly becoming a reality, however, it has become possible, even necessary, to consider issues of information representation and storage together with issues of information search and retrieval. One of the most challenging issues in electronic information retrieval (CD-ROM, online catalogs, and online information retrieval systems) is providing effective subject access to users. This article examines three dimensions along which changes in the domain of subject access may be considered and describes current methods of providing subject access by controlling the results of indexing as well as by informing the search process. This study also suggests an integrated framework through which subject access may be facilitated and proposes an agenda for practice, education, and research.

The major purposes of this article are twofold. First, we propose that methods intended to assist in the searching process be grouped together and the group subsequently be called "informed retrieval" methods. Informed or guided retrieval is defined as using feedback from an information system in order to improve retrieval results. A simple example of using such feedback is scanning the subject headings assigned to a book about a topic of interest, and then incorporating those terms in a subsequent search. This concept of informed retrieval parallels that of authority control, the establishment and use of controlled vocabularies in indexing. Second, we propose that an integrated framework be developed, one that includes both authority control and informed re-

trieval as equally important methods in providing effective subject access. Whereas practical and research efforts are currently under way, these efforts should be coordinated within a framework that considers authority control and informed retrieval as partners, rather than distant relatives, in improving subject access.

DEFINITIONS

Subject headings have been most closely associated with catalogs, and descriptors with indexes. In their electronic forms, indexes are commonly referred to as databases, while catalogs retain the name catalog, modified by the term *online*. In this article, we use the term "database" to refer to the online form of an index, and refer to catalogs, regardless of form, as "catalogs." Of course, both online catalogs and online indexes are databases in that they gather information units in a structured form to facilitate access.

The term "subject access" refers to the ability to conduct a search for information on a topic by various means: subject headings or descriptors, keywords, or the name of something or someone thought to be associated with the topic. (Citation indexes facilitate the latter form of access.) Closely tied to this issue of subject access is the issue of authority control. Authority control has been regarded as a service to library users, ensuring consistency in the choice and form of words or groups of words that are used to represent a specific concept in a bibliographic record. From the indexer's perspective, authority control means the process of matching the intended term with the terms prescribed by a thesaurus. When no match occurs, the process of adding a new term to the thesaurus can be initiated or the next best term may be selected.

THE DOMAIN OF SUBJECT ACCESS

Librarians are accustomed to thinking of subject searching as taking place in a number of locations and using multiple sources. Users routinely search sources

such as library catalogs, printed indexes, and online databases in their efforts to find bibliographic citations for items pertaining to the topics of their interest. Traditionally, these sources not only are physically separate, but also are searched in distinct ways. An examination of three dimensions of the environment, or the domain as we have termed it, of subject access reveals accelerating changes that are transforming it, offering new options to users and creating new challenges for librarians. The three dimensions to be examined are: (1) new online searching capabilities that differ from those of manual searching; (2) decreasing visibility of the boundaries between multiple subject indexes and catalogs, as access is provided through a single computer terminal; and (3) the diversity of approaches to providing subject access.

NEW ONLINE SEARCHING CAPABILITIES

The introduction of online public access catalogs during the decade of the 1980s has extended online searching capabilities to catalogs. This development presented to users the options of keyword and Boolean searching, truncation, and cross-field access (title, author, subject) to enhance their searching. In all of these approaches, the searcher now has powers that were, in manual systems, available only to indexers. For example, indexers created a keyword index in order for searchers to have access to keywords. Likewise, indexers created pre-coordinated subject headings as a means of combining topics, whereas today, searchers can coordinate the desired concepts themselves, as needed. The searcher's ability to postcoordinate keywords is increasingly important as online searching has become more widespread. While searching vocabularies (subject heading lists and thesauri) have generally been available both as searching tools and as indexing tools, searchers can now use the terms in both keyword and linear access modes,

thereby increasing their control over the preestablished use of the terminology.

Recently, Marcia Bates suggested that searching has advanced to such a degree that "online search capabilities themselves constitute a form of indexing."¹ That is, online searchers can, at the time of searching, use Boolean operators to coordinate concepts in the way indexers do when assigning pre-coordinated subject headings. These new search capabilities significantly change the kind of subject access available to searchers, giving them powers previously available only to indexers and catalogers.

DECREASING VISIBILITY OF INDEX CATALOG BOUNDARIES

On more and more campuses throughout the country, databases produced by external suppliers are being purchased and mounted on campus computer networks along with the local online catalog. The "library without walls," in which faculty and students can search the library's catalog, and selected databases such as MEDLINE and ERIC from a single terminal in home or office, has all but erased the distinction between bibliographic records produced by catalogers and indexing records produced by abstracting and indexing agencies.

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(The proliferation of optical disc systems that resemble online systems has further clouded these distinctions and may contribute to users' difficulty in knowing exactly what they are searching through a particular terminal.) The once clear division between subject headings and descriptors—the former occurring on cataloging records, the latter appearing in indexing records—has also

blurred. On the one hand, subject headings, constructed as precoordinated sets of terms, were coextensive with the subject matter covered in the book. On the other hand, descriptors were applied as terms representing one aspect of the item, with many descriptors assigned in order to cover the subject matter of the item as a whole. From the viewpoint of the searcher using Boolean logic and keywords, the precoordinate or postcoordinate construction of the "subject access point" is largely irrelevant, provided the subject matter is adequately represented. The controversy surrounding the most recent edition of the *Library of Congress Subject Headings (LCSH)* in which the subject headings are presented in a thesaural format, as descriptors have always been presented, highlights this tendency to treat indexes and catalogs as different versions of the same thing, even from the viewpoint of construction. (Thesaural format means the careful linking of terms in a syndetic relationship designated by Broader Term [BT], Narrower Term [NT], or Related Term [RT]. This format differs from the traditional subject heading list in which the relationships among terms were less rigorously constructed.)

DIVERSITY OF SUBJECT SEARCHING APPROACHES

Along with expanded searching powers has come a multiplicity of approaches to subject searching. The degree and power of subject access available in any one system can no longer be described solely in terms of standard indexing policies and procedures. Evidence of greater diversity in methods for subject searching may be found in the user manuals provided with online catalogs and databases. These manuals document the methods adopted by a particular catalog or database with regard to retrieval algorithms, searchable fields, scope of coverage, source and control of indexing terminology, and depth of indexing, as well as the system features and interface characteristics of-

fered for online searching. The conversion of some indexes from magnetic tape to optical disc storage prompted some producers to redesign the database and to introduce variations in virtually all of the areas listed above. The CD-ROM versions of such bibliographic databases as *Science Citation Index*, MEDLINE, ERIC, and *Psycinfo* are just a few examples in which there are differences in searching methods between the online and CD-ROM products. Thus, in addition to the new searching capabilities offered in the online and CD formats, other measures of diversity in the methods for subject searching have been introduced.

THE IMPACT OF THE CHANGING ENVIRONMENT ON USERS

In the face of these environmental changes, the problem becomes one of continuing to provide subject access in a shifting environment. Although effective subject retrieval has been understood as an optimal balance between recall and precision, there are currently no standards which can be used to determine when this optimal balance has been reached. Rather, effective retrieval results from specific search strategies carried out in individual situations and evaluated by individual users whose judgments of relevance may be influenced by a variety of factors such as time, money, information need, and previous knowledge. To examine the problem of providing effective subject access, the authors describe current methods of providing subject access by controlling indexing results as well as by informing the search process, thus defining a continuum on which methods established to assist in subject retrieval can be identified and placed.

CURRENT METHODS OF CONTROLLING INDEXING RESULTS

A thesaurus or subject heading list is the traditional approach to defining concepts and mapping the relationships among concepts in a field in order that

material on those subjects can be represented in a consistent way. From the vocabulary "at large," some terms are selected for use in the controlled vocabulary and references are made from terms not used, synonyms or near synonyms, to the selected terms. Many choices are made in the construction of a thesaurus; among them is the choice of whether a "top-down" or "bottom-up" approach will be employed in assembling terms; that is, whether the terms represent all knowledge in the field, regardless of the frequency with which they appear in the literature, or whether terms shall be determined by literary warrant, i.e., their appearance in the literature of the field. Choices about the number of cross-references from popular usage or new terms must also be made. Overall, considerable time and intellectual energy are brought to bear in the construction of a well-designed subject authority list or thesaurus. The expenditure of these resources is justified in the belief that controlled vocabularies, because of their classing functions, are the primary means of facilitating recall and, therefore, provide a needed service to users.²

While authority control exists as a service to users, in practice, users have had little or no input into the construction of thesauri. With the exception of consultative groups representing specific subject fields, it is usually librarians or indexers who determine controlled vocabularies. However, Phyllis Reisner proposed involving users in the creation and maintenance of searching vocabularies nearly three decades ago.³ In the 1980s, Jean M. Tague proposed user-responsive subject headings and Marcia J. Bates described a "superthesaurus" in which virtually all terms would be available as a "front end" to assist users in finding their way through a series of cross references to the controlled vocabulary term.⁴ While these proposals have not been developed into working systems, other similar ideas have been implemented. Sara D. Knapp's early work in developing BRS/TERM, a vocabulary database for searchers, is a "home-grown" solution to

the problems of rationalizing natural language to the numerous controlled vocabularies that exist in multifile systems such as BRS.⁵ In an experimental interface at the University of Illinois, users may propose additional terms for inclusion in the controlled vocabulary. Librarians review these for permanent inclusion.⁶ The personal HYPERCAtalog project initiated at LIBLAB at Linköping University in Sweden also has features whereby authors and users indicate indexing terms and leave a "usage trail" that subsequent searchers may follow.⁷ (A usage trail is analogous to hiking through a meadow. As hikers select their paths, they leave their footprints, eventually making a visible trail. Several trails may exist simultaneously, each having advantages in terms of access, destination, ease, efficiency, perspective, or resources. Subsequent hikers can select an already available trail or strike out on their own. Similarly, expert searchers can establish pathways through the library's catalog.)

The control of vocabulary started within single disciplines and databases. Users can search multiple databases covering a number of distinct subject areas from a single station, vocabulary control becomes more complex. While some thesauri attempt nearly universal scope (*LCSH*), others, such as *Medical Subject Headings (MeSH)*, are more closely related to a particular discipline. To facilitate moving from concepts in one database to the same concept in another database, special tools such as the *Cross-Reference Index*, which links already-existing terms in thesauri, have been developed. Through facilities such as DIALINDEX and BRS/TERM, major online database vendors such as Dialog and BRS enable searchers to ascertain the frequency of occurrence of terms across several databases to assist in term selection. Still another method of rationalizing multiple indexing languages is a prescriptive approach such as the Universal Medical Language System (UMLS). In this project, indexers are developing a specialized language to represent concepts in a variety of

documents such as scientific articles, medical records, and research reports.

CURRENT METHODS OF INFORMING THE SEARCHING PROCESS

As methods of controlling the results of indexing through authority control change to meet current challenges, users' efforts to design an effective search strategy must adjust accordingly. Librarians can assist users in developing improved search strategies through bibliographic instruction and system design. Because the bibliographic instruction approach is adequately described elsewhere in the literature, the authors do not discuss this approach here.⁸ We do suggest, however, that bibliographic instruction librarians possess a rich store of knowledge that could be incorporated into system design. Such systems would have as their objective effective subject access through "informed retrieval." As mentioned earlier, we define informed retrieval as using feedback from an information system in order to improve retrieval results. The system provides feedback and integrates it into system design. However, the user controls it and can invoke it as needed. Informed retrieval is not totally automatic and does not, therefore, perform exactly as a counterpart of an automatic indexing system. Instead, informed retrieval provides to the user greater control over the results of the indexing process. Therefore, informed retrieval constitutes a form of user-exercised "authority control."

While informed retrieval is presently undefined as a categorical set of methods, progress towards this end may be observed in the current environment of information retrieval systems. Some examples are systems that display descriptors and ask whether the user wishes to see other documents indexed to these terms and systems that display graphically, or otherwise, indications of the probable relevancy of documents within a set. Still other systems supply automatic truncation or "wild card" features to increase retrieval. However, unless the system informs the user that such a

feature is automatically invoked, it can be confusing and fail to truly "inform" the searching process.

Users themselves often modify an information retrieval system by creating commonly needed search strategies as macros or "hedges," storing them at the searching station and invoking them as needed. Two examples illustrate the use of hedges. Users searching across multiple databases create a hedge linking synonymous terms, thereby bringing together varied terminology. When hedges are used to retrieve materials on a concept too new to appear in a thesaurus, and especially when they are shared among searchers, they serve as a kind of local subject authority control device.⁹

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Almost twenty years ago, F.W. Lancaster described many of the premises on which these ideas are based. They are reflected in the design of such early systems as SUPARS, an online system for accessing *Psychological Abstracts* developed at Syracuse University.¹⁰ These ideas are closer to more widespread implementation because the technology is now available. However, librarians cannot expect users to search immediately with the same sophistication that indexers have, particularly when these searchers have not been educated in the principles of bibliographic control and access. Librarians must provide help, e.g., through vocabulary displays that make relationships among terms clear, leading users from unused to used terminology, allowing the user to conduct the search in natural language which the system then translates into the appropriate controlled vocabulary. Although early online systems were intended to be searched by end users, they failed to attract large numbers of users not because of the theoretical principles that under-

lay their design, but because the technology was too primitive to support them adequately. Despite the introduction of programs to assist users in devising suitable search strategies, truly effective information retrieval by end users remained an elusive ideal.

Since the early 1970s, further research into end-user searching indicates that end users are not performing particularly effective searches. Comparisons of the search results of search intermediaries with those of end users reveal that trained intermediaries retrieve a greater number of relevant citations than do end users.¹¹

A FRAMEWORK FOR FACILITATING SUBJECT ACCESS

The preceding discussion leads the authors to suggest that several trends are converging toward the shared goal of providing effective subject access to users. This convergence exercises control not only over the indexing process, but also over the searching process. Indexing and searching affect one another in many ways: depth, entry vocabulary, and strategies employed. The traditional controlled vocabularies supplied, maintained, and applied by librarians and indexers can be used to form the basis for user vocabularies. Additionally, informed retrieval provides feedback during the search process, notifying searchers of their location in the database relative to the controlled vocabulary's structure, as well as their progress in locating relevant materials. In other words, the system provides feedback about where the searcher is located in the search, whether more information is available, and what can be done to retrieve it.

We do not wish to diminish the importance of, or necessity for, controlling the indexing process. On the contrary, we believe that as long as humans or machines perform indexing, guidelines and controls are essential. The concept of informed retrieval, when combined with controlled vocabularies, is powerful indeed. Two examples of this kind of com-

bination are Knowledge Finder, a CD-ROM MEDLINE system for the Macintosh, and Autocat, an online catalog developed at Dickinson University.¹² Both use the power of controlled vocabularies and provide the user with an array of tools that can be invoked as needed when monitoring the progress of the search. Other examples no doubt exist.

The traditional controlled vocabularies supplied by librarians and indexers can be used to form the basis for user vocabularies.

Current research at OCLC exemplifies another line of investigation.¹³ A recent study examined the extent to which user-entered terms correspond to the catalog's controlled vocabulary and determined that up to two-thirds of user-entered subject terms do not match *LCSH* terms in exact, normalized, or keyword form. Further analysis of the searches will identify those subject terms that are close approximations of *LCSH* terms and will identify what system capabilities are needed to assist users in approaching *LCSH* terms more closely.¹⁴ To the degree that such research is successfully implemented and disseminated, subject authority control will be one means of achieving optimal recall and precision in subject searching. Subject authority control and informed retrieval will be seen as complementary and essential components of providing subject access.

While ideally we would like to see orderly progress toward effective subject access through directed efforts within a set of theoretical principles, in fact the practical steps are isolated and atheoretical. A concerted effort to recognize, coordinate, and promote work would encourage quicker and more efficient progress.

AN AGENDA FOR PRACTICE, EDUCATION, AND RESEARCH

Directed changes in practice, education, and research are needed to achieve

effective subject access for tomorrow's world. Most agendas consist of lists of projects to undertake, but our agenda calls for action, particularly for a cooperative approach to subject authority control and informed retrieval. The literature of library and information science is replete with studies calling for improved controlled vocabularies, better front-end software, and more effective bibliographic instruction programs. Yet the interchange is often confined to librarians from similar functional specialties. Thus, awareness of other work is limited, and its benefit and impact are diminished.¹⁵ More efforts to bring together in dialogue interfunctional teams and to foster projects involving subject authority control experts, bibliographic instruction librarians, and online catalog system designers are needed. For the same reasons that the Council on Library Resources promotes collaboration between practitioners and researchers, an integrated approach toward enhancing subject access would, if adopted, bring together the makers of subject authority control systems, the designers, and the teachers of end users. While some of these changes are already under way, we anticipate that the pace of change must accelerate if librarians are to retain an active role in future decisions.

In the practice of librarianship, the walls between technical and public services are beginning to disappear. Occasionally, the two divisions are merged; more often, individual positions take on responsibilities for both cataloging and reference. In one of the best known of these experiments, at the University of Illinois Urbana-Champaign Library, librarians reported acquiring a broader, holistic approach toward connecting users to the information they wanted.¹⁶

Librarians who take on responsibilities for cataloging and reference describe the "informing effect" that results—an effect that is subsequently used to modify both cataloging and reference practices.¹⁷ The knowledge and skills used in cataloging, e.g., a knowledge of the catalog and the subject classification, are of direct use in assisting users. Conversely,

a knowledge of user needs and priorities is an important element of decision making with regard to cataloging policies and priorities, a point made years earlier by R. C. Swank.¹⁸ Therefore, from the practical experience of the Illinois librarians, the insights of the faculty and the authors' cataloging and reference partnership, we suggest that subject authority control and informed retrieval form a logical coalition for providing subject access.

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For many years, curricula in library schools have reflected the traditional administrative division between public services and technical services in libraries. In so doing, the schools fail to establish leadership in designing an integrated approach to effective subject access. Subject indexing, bibliographic instruction, and information system design courses are taught with minimal attention given to the role that each function plays in enhancing subject access. A first step toward achieving this approach is integrating the teaching of the representation of information with the retrieval of information. Some library schools have already taken this step.

The theoretical foundations for a unified approach to research in subject access come from both within the field of library and information science and from other disciplines such as cognitive psychology, linguistics, and information storage and retrieval. One strength of this multifaceted foundation is that various insights can be applied to the broad problem of creating effective subject access. The three parts of this problem are controlled vocabulary and subject authority; informed retrieval applied during the search process; and the potential of natural language processing to either enhance or supplant traditional human subject cataloging.

While well-established research tradition on the performance of controlled and uncontrolled vocabularies in the retrieval process exists, many of these studies have taken place in a laboratory environment.¹⁹ Earlier research concentrated primarily on the performance of indexing schemes and did not consider retrieval from catalogs. Only with the introduction of the online catalog have catalog-use studies looked more closely at the process of subject access.²⁰ Furthermore, much of this research failed to consider the effect of either the user or the system interface on the retrieval process. Recent research has attempted to examine performance from many dimensions, taking into consideration the effect of the query, the retrieval technique, the searcher, and the nature of the search process.²¹ We call for greater attention to the potential in these areas and for discussion and research that involves researchers in other disciplines, librarians, and information scientists. By suggesting informed retrieval as a theoretical framework, we hope to enable librarians and information scientists working in both areas—indexing and retrieval—to coordinate efforts to produce truly exciting and informative systems.

FUNDING AND SUPPORT

A critical item on any agenda for action and research is the question of funding: Who will pay? In times of limited resources when new monies are scarce, funds must come from more efficient utilization of present programs, from cost shifting, or from changed funding priorities.

The bibliographic control community has borne a large part of the fiscal responsibility for subject access. Catalogers at the national level, through institutional or agency support of national libraries such as the Library of Congress, the National Library of Medicine, and the National Agricultural Library, or through cooperative cataloging efforts promoted by the bibliographic utilities such as OCLC and RLG, have carried the burden for current subject access. While users have indicated that

enhanced subject access is a high priority, librarians have long stated their concerns for the restricted resources available to fund the development of subject headings.²² Yet, cooperation among decision-making agencies has brought a much-needed focus to addressing the problems of funding effective subject access through cooperative cataloging programs and shared research.

Recently, system designers and developers, both in the private and public sectors, have picked up some of these costs. In some cases, they have also sought to recoup these development costs by marketing their systems directly to users, bypassing the traditional library channels. Perhaps the scarcity of available money to fund research and discussion between the research and practice communities further reflect this desire for a return on investment. With regard to the role users play in bearing the burden of subject access, Lancaster suggested that users also contribute to the cost of achieving precision in information retrieval because they spend time and effort to prepare a search strategy, run the search, and refine the results.²³

The implications of cost shifting suggest that the bibliographic control and system designer community, as well as users, have a substantial stake in decisions affecting subject access. If so, it is even more important to unite the knowledge and expertise of these communities in an integrated approach to creating effective subject access. As money continues to diminish, both cataloging and reference librarians are turning to other ways of managing their bibliographic control operations. Using paraprofessionals, incorporating artificial intelligence and expert systems for both training and task performance, and simplifying cataloging are all attempts to cope with financial and staffing crises in both cataloging and reference areas.²⁴

SUMMARY

In the world of Charles Cutter, providing subject access was a manageable task. In retrospect, it appears that a

readily distinguishable topical nature characterized publications, mostly monographs. Catalogers and users alike identified topics similarly. The information explosion, together with the pluralism of today's society, produces a complex and diverse set of publications to which people want subject access.

If librarians agree that effective subject access is a realistic goal, and that authority control and informed retrieval are viable means for achieving that goal, they must begin to integrate presently fragmented efforts into a unified agenda. A great deal of time, talent, and money have been expended to achieve these goals. Now a clear path toward a unified framework is needed. Separate communities within librarianship—indexers and catalogers, reference librari-

ans, bibliographic instruction specialists, and system designers—have developed differing approaches to solving this universal problem. While positive effects may be derived from differing approaches, all approaches must contribute to a unified approach in recognition of the constraints of scarce resources.

The framework proposed embodies a comprehensive approach that includes authority control and informed retrieval as a holistic approach to subject access. Both representation and retrieval are integral parts of a holistic approach to subject access. Through the implementation of an agenda for action in practice, education, and research, librarians can ensure a future of effective subject access conceived within a unified framework of authority control and informed retrieval.

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Occupational Role Identity of Women Academic Librarians

Pamela J. Cravey

With advanced microcomputer technology, distributed access to bibliographic and textual data, and a cultural climate of disdain for the traditional, the professional demands placed upon academic librarians are enormous. And yet, women continue to embrace this professional subspecialty. A national survey examined the occupational role identity of female academic librarians. Personal, demographic, and job data were collected. In addition, a test for orientation to the occupational role and a sex-role orientation test were administered. Statistical analyses ranged from cross-tabulations to multiple discriminant analyses. Academic librarians were found to hold a positive and unique occupational role identity.



In 1983 Kathleen Heim noted, in *The Status of Women in Librarianship*, that librarianship is still a field that is numerically dominated by women.¹ In an era in which so many occupational choices are available to women, what is there about academic librarianship that continues to make it a viable career option for women? The answer to this question lies in the occupational role identity of academic librarians.

IDENTITY AND IMAGE

To the general public, the word *librarian* conjures up either an outmoded stereotypical picture of a "little old lady with a bun" or a rigid personality type. In other words, regardless of what librarians actually do, the profession labelled "librarian" evokes a single occupational image. Pauline Wilson criticized librarians for spending inordinate amounts of time agonizing over their image.² Similarly, Patricia Glass Schu-

man indicated librarians should be "spending less time talking to ourselves, about ourselves; spending less time discussing the inner workings of our libraries. . . [and should]. . . effectively present the potential of American librarianship."³

What is the difference between occupational identity and occupational image? Occupational image is the collective perception of what a person is in the occupation. It is formed by the opinions of others, and like a stereotype, it seems to be unresponsive to change. Its impact is felt in areas such as recruitment and occupational status and prestige.^{4,5} Occupational identity, on the other hand, is self-perception. Occupational identity determines how librarians see themselves in relation to librarianship—to the functions as well as to the clientele. Within librarianship there exists a subculture of subspecialties. Some critics have hypothesized that each librarian subspecialty may also have a unique oc-

Pamela J. Cravey is associate professor and head of the Circulation Department, Pullen Library, Georgia State University, Atlanta, Georgia 30303.

cupational identity. For example, Beverly P. Lynch described the occupational identity of the academic librarian as being closely allied to that of teacher and researcher.⁶

Most of the literature about librarians, however, is focused on their image, rather than occupational identity. This literature has described the image of the librarian from the users'/observers' viewpoint, by studying library school students, or from a purely demographic and socioeconomic perspective.⁷⁻⁹ In some instances the librarian type was described after comparing a limited number of traits held by library school students to some form of a general population.¹⁰ Generally, "image" is used as a euphemism for "stereotype." For librarians this image traditionally has been negative.

The project was aimed at understanding women librarians through an analysis of some of the components of the total occupational role.

In reaction to the stereotype—the external view of the profession—the librarian's own occupational self-perception has suffered from internalizing the negative impression. For example, Wilson's content analysis of nearly 500 documents written about the librarian stereotype from 1921 to 1978 concluded that the negative librarian image has pervaded both professional librarian as well as nonlibrarian literature.¹¹ This study relates to occupational image rather than to occupational identity. However, two notable studies of the occupational identity of librarians do exist. Both studies considered the occupational subculture of public librarians. Alice I. Bryan's landmark study of public librarians found an anomalous group with no clearly defined professional identity.¹² Robert B. Clift's study found that librarians underestimated their importance to their clientele.¹³ This undervaluation of professional worth—a result of the pervasiveness of the nega-

tive occupational image—was also reported by Rosalee McReynolds and by Locke J. Morrissey and Donald O. Case.^{14,15} Further, a recent study of product/service advertisements in four journals representing four dominant librarian subspecialties found shallow and boring physical and action-role portraits of librarians.¹⁶ No studies presenting the occupational identity of librarians were identified. In an effort to explain the occupational identity of the librarian from within the profession, a large national survey of professionally committed librarians was conducted in 1986. Funded by the Council on Library Resources, the project was aimed at understanding women librarians through an analysis of some of the components of the total occupational role. These components included personal demographics, orientation to the occupational role, and sex-role orientation. In addition, in order to determine if unique occupational subcultures exist, librarians representing four traditional subspecialties of librarianship—academic, public, school, and special—were sampled. Findings from the study included a picture of the occupational identity of each of the subspecialties. Women practitioners were viewed apart from the question of the occupational image. This paper reports on the occupational role identity of women academic librarians as identified in this national survey.

THE SURVEY

The Sample

Nine hundred seventy-seven female librarians representing members of each of these four traditional subspecialties were surveyed. Sample size was determined by projected response rate, sampling procedure, homogeneity of the groups to be studied, and cost. First, the study was designed to analyze responses from 400 librarians—100 from each subspecialty. In order to offset the projected 40 to 50 percent response rate of typical self-administered questionnaires, the group size was increased.¹⁷ Second, the project was designed to study members

of four subspecialties that naturally represent strata of the profession. Because projected variances among these subgroups were of primary interest, a stratified sampling procedure was employed.¹⁸ Third, because each of the four strata was homogeneous relative to the attributes to be studied, a subgroup sample of 100 was sufficient.¹⁹ Because records based on gender were not available, each sample subgroup was increased proportionate to the estimated number of men in that subspecialty. Finally, the costs of a larger sample were considered in relation to the expected gain in precision. By using this stratified sample, the study was comparable to a "special" survey of few subgroups. For this method, Seymour Sudman suggested a sample of 200-500. Doubling the sample size would not have significantly increased precision.²⁰

Two national associations drew the random samples. The American Library Association supplied a list and mailing labels for samples drawn from the membership rosters of the Association of College and Research Libraries, The Public Library Association, and the American Association of School Librarians. The Special Libraries Association provided the same for the special librarians.

The project was restricted to women for two reasons. First, cost precluded use of the larger sample size that would have been necessary to include a representative sample of men. Second, little scholarly attention has historically been given to developing a theory about the unique factors that influence occupational choice for women.²¹ Victor R. Fuchs noted that interest in gender issues relative to occupational choice and economic equality is unequal.²² Part of the reason for this unequal treatment is that the issues surrounding an occupational choice are so complex that the literature of several fields is replete with studies. For example, journalists, educators, psychologists, economists, vocational counselors, and sociologists all examine occupational choice.²³ Studies are regional, cross-cultural, or international.²⁴ Study subjects include boys, women,

high school students, and junior college students.²⁵ Scholars have proposed universal models, subject-specific models, and models that lean toward separate criteria for different types of people.²⁶ Some studies are concerned with occupational aspirations, aspirations in relation to choice, and aspirations related to outcome.²⁷ In addition, choosing an occupation has been dichotomized in the literature as normative, adventitious, or purposive.²⁸ Each discipline further divides its literature into three or four main categories. For example, Samuel H. Osipow identified four theoretical frameworks—trait-factor, self-concept, sociological, and personality theories.²⁹ Ronald M. Pavalko characterized three different approaches to the study of occupational choice: the rational decision making approach, the fortuitous approach, and the sociocultural influence approach.³⁰

Women continue to remain underrepresented in studies that focus either on overall occupational choice or on choice of an occupational subspecialty.

Researchers and theorists have wrestled with the development of an overall theoretical framework for analyzing occupational choice. However, a confounding variable hindering the development of such a theory is the possibility that multiple gender-specific theories must be developed.³¹ These writers argue that women are not free to make meaningful choices and that the choices made may reflect labor market insensitivities, socialization, and child-rearing responsibilities and emotional involvements.³² Consequently, while occupational choice theories abound, no unified theory yet exists. Further, women continue to remain underrepresented in studies that focus either on overall occupational choice or on choice of an occupational subspecialty.³³ This study was restricted to women with the hope that the findings relative to oc-

cupational identity would contribute to the overall literature of occupational choice for women.

The Questionnaire

The librarian's occupational role identity was studied through the use of a self-administered, three-part mailed questionnaire that queried subjects about themselves, their assessments of job-related attributes, and their views on sex roles. The first and second parts of the questionnaire were developed by the researcher.

The first part of the questionnaire was an overview of the librarian's personal occupational and social history. It included thirty multiple-choice and open-ended questions about demographics, economics, career choices, career mobility, nuclear family, and family orientation, among others.

The second part of the questionnaire was a twenty-question bipolar semantic differential. It was developed using the domain sampling model. The semantic differential technique is used to measure both the meanings of things and attitudes toward things. It is a flexible measure that can adapt to a variety of concepts and formats. The semantic differential technique is frequently used to measure the differences in meaning of the same concept among groups. Bipolar scales are used to measure the differences, and when factor analyzed, the differences traditionally yield the three dimensions of "evaluation," "potency," and "activity."³⁴ While the semantic differential technique has its critics, in occupational research it can be a way of assessing the saliency of a concept among groups.³⁵ To that end, two small surveys of practicing librarians were conducted to establish the poles for the semantic differential portion of the questionnaire. The poles were to be relative to the librarian occupational role. In the first small survey, forty librarians suggested adjectives to complete the sentence: "In my role as an academic librarian I think I am: _____" The 176 adjectives suggested by these practitioners were tested for

bidirectionality in several thesauri and were culled by frequency distributions to twenty of the most representative. Then forty additional librarians were contacted in the second small survey to provide "librarian role" antonyms to these twenty "librarian role" adjectives. Librarians (twenty from each subspecialty) were selected for the adjective and antonym assemblage phases of the project to assure both scale poles would represent the salient aspects of the librarian role and cover the semantic space relative to librarianship.³⁶ Page placement on the final questionnaire was determined by a criss-cross first-to-last last-to-first strategy.

The third part of the questionnaire measured the sex-role orientations of the librarians. The Short Form of the Personal Attributes Questionnaire (PAQ), developed by Janet T. Spence, Robert Helmreich and Joy Stapp, was used with Dr. Spence's permission. The Short Form PAQ is a twenty-four-item bipolar self-report instrument used to differentiate stereotypically between the sexes.³⁷ It also tests for masculinity and femininity. The PAQ was selected to measure sex-role orientation because it "is made up of items describing characteristics that are not only commonly believed to differentiate the sexes but on which men and women tend to report themselves as differing. . . . The stereotypic characteristics included on the PAQ are favorably regarded, socially desirable attributes."³⁸ Sex-role orientation was selected as an important domain of occupational identity because of the numerical dominance of women in the profession and the service relationship to the clientele. George Ritzer indicated that these attributes and "the seeming fit between occupational and sex roles" conspire to oppress professions in which women are numerically dominant.³⁹

Data Collection

Questionnaires were mailed with cover letters on university stationery. The letter mentioned the researcher's current position as a librarian and explored participation as a colleague. An

addressed, stamped, return envelope and a response postcard were also enclosed. There were no identifying marks or numbers on the questionnaires or on the return envelopes. All responses were anonymous. A reminder postcard was sent after two weeks; three weeks later another copy of the questionnaire was mailed. The overall response rate was 84.5 percent.

Responses

Responses were received from librarians practicing in all states except Idaho; and from the District of Columbia, Puerto Rico, and Canada. One hundred seventy-nine responses were from academic librarians—a response rate of 83.6 percent. Findings will be presented according to each of the three role identity components studied.

ACADEMIC LIBRARIANS

Personal Demographics

The first part of the questionnaire collected background information on the librarian respondents. Frequency distributions yielded little variety in either the entire sample or in the academic librarian sample relative to most of the personal demographic attributes. For example, the mean age of the total sample was 43.8 years; the mean age for the academic librarians was 43.7 years. Table 1 summarizes some of the nominal data about academic librarians and percentages relative to the total sample.⁴⁰

A thumbnail sketch of the "average" academic librarian revealed a white, protestant, married, middle-aged woman with no children. She is the progeny of professional parents. This librarian began her career at age twenty-three after receiving an M.L.S. in 1971 from a library school in the east—probably Simmons College, Columbia University, or Rutgers. She has practiced academic librarianship for eleven years. Exactly half of the academic librarian respondents had practiced in other librarian subspecialties as well—usually special librarianship—but preferred academic librarianship because they found

it challenging (15 percent) and they liked the academic environment (15 percent).

A thumbnail sketch of the "average" academic librarian revealed a white, protestant, married, middle-aged woman with no children.

Academic librarians were satisfied with their career choice; 69 percent indicated they would again select librarianship as a career. When asked why, the response most often cited was "I like it!" Approximately 75 percent of the academic librarians would again select academic librarianship as a subspecialty. Conversely, 30 percent of the academics indicated they would not select librarianship as a career again. One-fourth of these librarians cited pay as the reason. Among these women, most cited law and teaching equally as the careers they would pursue instead of librarianship. Again, pay was the predominant reason (20 percent) for these choices.

Academic librarians are professionally involved and committed to continuing education. Thirty-nine percent of them had degrees or training beyond the library degree. This training included additional coursework, certification programs, and additional or advanced degrees. Second master's degrees (completed and in process) were reported by 40 percent of the academics with advanced training. In addition, over one-half of the academic librarians belonged to two or three professional associations. By way of comparison, only 13 percent of the public librarians cited training beyond the library degree. However, public librarians (71.5 percent) indicated more associational memberships than the other three subspecialties.

Orientation to the Occupational Role

The second part of the survey used the semantic differential technique to assess the respondents' orientation to the occupational role of librarian. The librarians were asked twenty Likert-style ques-

TABLE 1
OVERVIEW OF ACADEMIC LIBRARIANS

Number Percent of Academic Librarians (Percent of Total Librarian Sample)					
Ethnic Origin	Asian	Black	Hispanic	White	Other
	4	4	2	158	2
	2.4	2.4	1.2	92.9	1.2
	(1.6)	(3.1)	(0.9)	(93.4)	(1.0)
Religion	Catholic	Jewish	Protestant	Other	
	29	8	85	38	
	18.1	5.0	53.1	23.8	
	(18.9)	(6.5)	(56.2)	(18.5)	
Marital Status	Divorced	Married	Never Married	Separated	Widowed
	17	93	59	0	3
	9.9	54.1	34.3	0.0	1.7
	(13.4)	(58.0)	(25.3)	(0.3)	(3.1)
Offspring	Yes	No			
	75	97			
	43.5	56.4			
	(51.5)	(48.5)			
Father's Occupation	Blue Collar	Craftsmen	Farming	White Collar	Not employed
	19	21	8	116	0
	11.6	12.8	4.9	70.7	0.0
	(15.4)	(11.1)	(6.3)	(66.8)	(0.5)
Mother's Occupation	Blue Collar	Craftsmen	Farming	White Collar	Not employed
	13	2	3	80	71
	7.7	1.2	1.8	47.3	42.0
	(10.9)	(0.5)	(0.9)	(47.1)	(40.8)
Library School	East	Midwest	North	South	Other
	57	53	35	23	2
	33.5	31.2	20.6	13.5	1.2
	(34.4)	(28.8)	(20.0)	(15.0)	(1.7)
Where Practicing	East	Midwest	North	South	Other
	51	43	43	30	6
	29.5	24.8	24.8	17.4	3.5
	(33.3)	(23.9)	(22.6)	(16.8)	(3.5)

**Number
Percent of Academic Librarians
(Percent of Total Librarian Sample)**

Would Select Librarianship Again	Yes	No	Uncertain	
	118.0	49.0	4.0	
	69.0	28.7	2.3	
	(72.1)	(25.8)	(2.1)	
Practiced in Other Subspecialties	Yes	No		
	84.0	84.0		
	50.0	50.0		
	(49.7)	(50.3)		
Additional Training	Yes	No		
	67.0	103.0		
	39.4	60.6		
	(32.3)	(67.7)		
Professional Association Memberships	One	Two	Three	Four or more
	21.0	52.0	54.0	20.0
	12.2	30.2	31.4	11.6
	(12.9)	(30.0)	(27.6)	(13.0)

tions that began: "In my role as a librarian in my current subspecialty I am" Several scholars suggest that situating survey questions in a specific role context allows the role to emerge, permits meaningful response options, and assures the stability of responses over long periods of time.⁴¹ On all but one question, the librarians did respond in their professional role. However, the nurturing/businesslike pair evoked many emotional handwritten comments and admonishments to the researcher. Clearly this question was extremely relevant to these women's current situation and emotional context.

Pay seemed to be an issue and was the factor most likely to cause them to move to another profession.

In the overall sample, the librarians' self-perceptions were extremely high;

responses generally clustered around the two most favorable response options. While the academic librarians' self-perceptions were extremely high, they were more moderate than those of the group as a whole. Table 2 displays the frequency distributions for the academic sample with all the orientation to the occupational role scales arranged in the same direction—most unfavorable to most favorable. Although the most favorable selection might not reflect a positive work situation (idle/busy), the responses of the academic librarians also clustered around the two most favorable intervals on most scales. In four adjectival pairs, the academic librarians' modal responses were different from the modal responses of the group as a whole.

Several statistical tests were performed on the adjectival pairs. First, factor analysis tested for dimensionality. Generally, factor analysis will yield three factors.⁴² A visual inspection of the twenty adjectival pairs indicated three

TABLE 2

FREQUENCY DISTRIBUTIONS FOR ORIENTATION TO THE OCCUPATIONAL ROLE OF ACADEMIC LIBRARIAN (ADJUSTED FREQUENCY PERCENT)

unsympathetic	.6/.0/4.1/17.1/ 47.6 /30.6/	N=170	sympathetic
*superfluous	.0/2.9/13.4/39.5/ 37.2 /7.0/	N=172	indispensable
process-orientated	5.2/3.5/8.7/16.8/26.6/ 39.3 /	N=173	service-orientated
idle	.0/.6/1.1/3.4/24.7/ 70.1 /	N=174	busy
unfriendly	.0/.6/.6/6.9/41.4/ 50.6 /	N=174	friendly
*rigid	.0/1.7/3.4/19.0/41.4/ 34.5 /	N=174	flexible
pessimistic	.6/4.6/14.5/24.3/ 38.7 /17.3/	N=173	optimistic
ignorant	.0/1.1/3.4/12.6/ 50.0 /32.8/	N=174	knowledgeable
hindering	.0/1.1/.0/4.6/38.5/ 55.7 /	N=174	helpful
unimaginative	.0/1.1/7.5/30.5/ 38.5 /22.4/	N=174	creative
disorganized	2.3/1.7/11.5/19.0/ 36.8 /28.7/	N=174	organized
incompetent	.0/1.1/1.1/9.2/37.4/ 51.1 /	N=174	competent
*nurturing	2.4/6.5/20.1/26.6/ 24.9 /19.5/	N=169	businesslike
*burned-out	.6/5.2/6.9/14.9/36.8/ 35.6 /	N=174	interested
underutilized	3.6/4.8/6.0/28.6/ 36.3 /20.8	N=168	overworked
bored	2.3/2.3/11.5/20.1/28.7/ 35.1 /	N=174	challenged
clerical	.6/1.2/3.5/12.1/26.6/ 56.1 /	N=173	professional
passive	.0/3.4/10.3/21.8/ 35.1 /29.3/	N=174	assertive
a "gopher"	.0/.6/3.5/13.9/ 47.4 /34.7/	N=173	instructive
uncooperative	.0/.0/.6/7.5/40.2/ 51.7 /	N=174	cooperative

Modal response for the overall sample of librarians (**highlighted in bold**).

- * The modal response of the academic librarians differs from the modal response of the entire sample.

factors could have emerged. However, only one factor did emerge (factor loadings ranged from .824 to .969). Consequently, a factor analysis that forced three factors was performed. Factor 1, however, accounted for 94.4% of the total variance (eigenvalue = 16.13744) and confirmed the unidimensionality of the data. Second, a one-way analysis of variance was performed on all twenty adjectival pairs. Ten were significant. Two of the four pairs in which the academic librarians' modal responses differed from those of the group as a whole (rigid/flexible and nurturing/businesslike) were significant. The results are presented in table 3 and table 4. Further, for the original twenty pairs, Scheffe's *a posteriori* contrast measure was used to determine pairwise differences. At the

.05 level, both pairs that had modal responses below those of the entire sample sustained that significance. Also, discriminant function analysis was used to compare the predicted librarian subspecialists with actual librarian subspecialists. As a group, 45.20 percent of the librarians could be correctly classified into subspecialty groups according to responses to these adjectival pairs. Academic librarians (34.10 percent) were the group least likely to be correctly placed according to the responses given. Finally, five adjectival pairs were combined (coefficient alpha = 0.41) to assess job satisfaction. These pairs included superfluous /indispensable, pessimistic/optimistic, burned-out/interested, underutilized/overworked, and bored /challenged. A mean job satisfaction

TABLE 3

COMPARISON OF LIBRARIANS CLASSIFIED BY SUBSPECIALTY BY SCORES ON THE "FLEXIBLE-RIGID" PAIR

A) Description of mean scores by librarian subspecialty.				
Subspecialty	\bar{X}	SD	N	
Academic	1.96	0.91	174	
Public	1.88	0.94	157	
School	1.67	0.78	175	
Special	1.72	0.77	183	
TOTAL	1.81	0.86	689	
B) Analysis of Variance of scores on the "flexible-rigid" pair by librarian subspecialty.				
Source	df	SS	MS	F
between groups	3	9.61	3.20	4.43
within groups	685	495.71	0.72	
	$p < .005$			
	$\eta^2 = .02$			

TABLE 4

COMPARISON OF LIBRARIANS CLASSIFIED BY SUBSPECIALTY BY SCORES ON THE "BUSINESSLIKE-NURTURING" PAIR

A) Description of mean scores by librarian subspecialty.				
Subspecialty	\bar{X}	SD	N	
Academic	2.76	1.29	169	
Public	2.72	1.38	150	
School	3.19	1.40	172	
Special	2.38	1.32	179	
TOTAL	2.76	1.37	670	
B) Analysis of Variance of scores on the "businesslike-nurturing" pair by librarian subspecialty.				
Source	df	SS	MS	F
between groups	3	57.32	19.11	10.56
within groups	666	1204.99	1.81	
	$p < .0001$			
	$\eta^2 = .04$			

TABLE 5
JOB SATISFACTION SCORES FOR ACADEMIC LIBRARIANS

Level of Satisfaction (Low to High)	1	2	3	4	5	6
Number	0	0	6	52	98	10
Percent of Academic Librarians	0.0	0.0	3.6	31.3	59.0	6.0
(Percent of Total Librarian Sample)	(0.0)	(0.3)	(4.4)	(26.2)	(63.4)	(5.7)

score of 4.7 for the sample affirmed that, overall, the librarians were satisfied with their positions.

Sex-Role Orientation

Part three of the mailed survey was the Short Form of the Personal Attributes Questionnaire (PAQ), a measure for sex-role orientation. This self-report adjective-rating instrument differentiates stereotypically between the sexes. Its twenty-four bipolar items include eight scales for masculinity (M)—those socially desirable characteristics that more males possess than females; eight scales for femininity (F)—those socially desirable characteristics that more females possess than males; and eight scales for masculinity-femininity (MF)—those characteristics whose social desirability varies among the sexes. Each item is scored 0–4, with a high score on M and MF indicating an extreme masculine response and a high F score indicating an extreme feminine response.⁴³

A multiple discriminant function analysis was performed on the twenty-four original PAQ variables with the four librarian subspecialties. More than one-third of the total librarian sample could be correctly classified into a subspecialty group by their responses to this third part of the mailed survey. Academic librarians were the most differentiated group—correctly placed 44.7 percent of the time.

All the librarians rated themselves very favorably. This "social desirability response bias" is not uncommon, as all the response options are socially desirable.⁴⁴ For the overall librarian sample,

the highest adjusted frequency percentage was at the most favorable anchor on 75 percent of the pairs. Seven pairs of librarian responses, however, fell outside the most favorable response option. Of these seven, five were affective attributes (emotionality, excitability, sensitivity, lamentation, adequacy) frequently associated with women. The homogeneity of the sample on gender, demographics, occupation, and degree of commitment to librarianship as a profession may have caused these results to be slightly skewed.

Normative values for the M, F, and MF scales were established on a college sample by using a mean of the medians test.⁴⁵ Academic librarians scored above the median for all three subscales. Table 6 compares the academic librarians' scale scores with the scores of the overall sample on the M, F, and MF scales.

The median split method was used to place M and F subscale scores into a 2x2 (MxF) table. This technique grouped responses into the four sex-role orientation categories of androgynous (high M high F), masculine (high M low F), feminine (low M high F), and undifferentiated (low M low F). Table 7 presents the percentage of median split classifications by subspecialty for the M and F subscales.

In a general sample, "androgynous" and "undifferentiated" would be the most populated cells. For female samples, the expectation is to have high F and low M scores. Writers have attempted to link position in the MxF table with self-esteem. When this is done, the androgynous position possesses the greatest self-esteem and the undifferentiated the least. Various theories argue

TABLE 6
A COMPARISON OF M,F, AND MF SCORES

	M	F	MF
Median	21.0	23.0	15.0
Academic Librarians	28.0	29.0	19.0
(Librarian Sample)	(27.7)	(28.8)	(18.2)

TABLE 7
PERCENT OF LIBRARIANS IN THE FOUR MASCULINITY AND FEMININITY
CATEGORIES BY SUBSPECIALTY

N=708

	PAQ Categories			
	Undifferentiated	Feminine	Masculine	Androgynous
Academic	24.5	29.1	20.8	25.4
Public	19.0	26.5	23.4	30.0
School	17.5	26.4	23.5	32.4
Special	20.3	23.4	26.5	29.6

the dispensation of the other two groups. Generally, they fall in-between androgynous and undifferentiated.⁴⁶ For the librarian sample, only the academic librarians rated high on the F scale.

CONCLUSION

Roles have been defined as "clusters of norms organized around functions. [They] represent distinct substructures within social positions and statuses, and are situation-specific."⁴⁷ The situation specificity of the occupational role of academic librarians—her occupational identity—was the focus of this research. For this project, occupational role identity was separated from the concepts of image or stereotype. Three domains of occupational role identity—personal demographics, orientation to the occupational role, and sex-role orientation—were studied.

Eli Ginzberg *et al.* identified three themes around which to evaluate occupational choice. These themes—"self," "reality," and "key people"—and an additional theme of "job satisfaction" were used to frame this study.⁴⁸ Within the

structural theme of "self," academic librarians in this study were white, Protestant, middle-aged, married women with no children. They were experienced in the profession as well as in their subspecialty. In terms of "reality"—those factors descriptive of training, preparation for, and the actual practice of the career—the academic librarians were summarized as achieving an M.L.S. in 1971 at one of three library schools. Pay seemed to be an issue and was the factor most likely to cause them to move to another profession. The academic librarians in the sample were well educated, pursuing studies beyond their library degrees. Sampled academic librarians welcomed the challenge of academic librarianship. In terms of "key people,"—mentors and family—they were the progeny of professional parents who probably encouraged them directly or by example to become professional women. The absence of children in their lives afforded them the time to succeed in the rigorous demands of academic librarianship. The fourth element, "job satisfaction," found the academic librar-

ians satisfied with their positions, with the exception of pay.

Orientation to the occupational role was the second domain of occupational role identity studied. Academic librarians were enthusiastic about their role identity, as evidenced by the clustering of responses around the most favorable options. However, they were somewhat more moderate in their enthusiasm than their counterparts in the other three subspecialties. While school librarians (60.5 percent) were the most predictable in their responses, academic librarians were the least predictable (34.10 percent). Four possible explanations for this are the "organizational structure of the library," the "clientele," the "specialization" available, and "certification."

"Organizational structure of the library" includes the size and type of the organization, the relationship of the library to the organization, and the relationship of the library program to the curriculum. Academic libraries encompass a wide variety of institutional foci (junior college, college, university, and research) with concomitant complexities in the organization of the host institution. While the primary relationship of the library to the host is clearly defined as supporting the curriculum, academic libraries must also support the research and service mandate of the faculty.

With a national emphasis on adult education and the entry of retired adults into colleges and universities, academic libraries may support a clientele ranging from the thirteen-year-old gifted student to elderly adults. Academic libraries also support the lifelong learning needs of their constituents.

Academic librarians may be characterized as the most decisive, the most excitable in a major crisis, and the most gentle.

"Specialization" in academic libraries introduces a large element of uniqueness to the subspecialty. Areas such as reference, cataloging, collection develop-

ment, serials, and database management require flexible thinking and specialized knowledge. In addition, graduate degrees and advanced training, elements that set the academic librarians apart, have introduced areas of specialization within the profession.

Generally, academic librarians do not have rigorous certification requirements. "Certification" would introduce a common knowledge base and a philosophical homogeneity into the subspecialty which academic librarians do not now generally possess. This domain of occupational identification most clearly differentiated between the subspecialties. As such, it showcased the modern academic librarian as a person who daily copes in an arena much broader than that of her colleagues in the other three types of libraries. Further, it confirms the existence of a unique occupational identity/subspecialty for academic librarians.

The final aspect of occupational role identity considered was sex-role orientation. This was included because of the numerical predominance of women in the field and raises issues of occupational power. Historically, professions with a numerical dominance of women have been segregated from a power base. Two of the traditional explanations cited are the service relationship to the clientele and the lack of life-death decision-making requirements.⁴⁹ Other reasons for including sex-role orientation in a discussion of the librarian's occupational identity are the librarian's alleged weak orientation to autonomy, the theory that the increase of homosexual men into librarianship is linked to fulfillment of the female role, and the overall image of the librarian as somehow deficient in feminine attributes.^{50,51} Based on research using the Short Form of the PAQ, academic librarians may be characterized as the most decisive, the most excitable in a major crisis, and the most gentle. They had the highest F score of the total sample.

With their educational background, commitment to continuing education, and role strengths, these women

strongly answer the question "Why academic librarianship?" Academic librarianship is an evolving profession which requires adaptability and commitment. These academic librarians show they have the adaptability—particularly with regard to the organization of the library,

clientele, and specializations—and commitment to lead their institutions into the next century. The academic librarians represented in the survey blended their interests nicely with the enormous and diverse demands of their occupational role.

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Designing Library Instruction for Undergraduates: Combining Instructional Systems Design and Naturalistic Inquiry

Delia Neuman

An instructional systems design (ISD) process guided the creation of MAJIK/1, a HyperCard program delivering basic, individualized library instruction in preparation for classroom teaching in more advanced topics. A technique derived from naturalistic inquiry (NI) was incorporated into the program's formative evaluation, which was administered to twenty-eight upperclassmen at the University of Maryland, College Park. Analysis of the data revealed that students had little difficulty with the content of the program but extensive difficulty in navigating within the HyperCard environment. The combination of ISD and NI suggests an effective approach to developing similar materials for library education.



Magazine and Journal Instructional Kit, Part 1 (MAJIK/1) is a HyperCard introduction to periodical indexes, to the procedures for using the University of Maryland, College Park (UMCP) Serials List to locate specific articles, and to the arrangement of periodicals throughout the UMCP Libraries System. MAJIK/1, the first and most basic of an anticipated four-module system on locating periodical articles at UMCP, is designed both to be used in conjunction with UMCP junior composition courses and to stand

on its own as a self-paced module for individuals seeking to review and update their skills.

The creation of the module followed an eight-step process based on instructional systems design (ISD) as explicated by Robert Gagne and Leslie Briggs, Walter Dick and Lou Carey, Jerrold Kemp, and others.¹ Derived from research and theory in the fields of learning, communication, systems engineering, and instructional technology, ISD consists of a set of principles and techniques for systematically designing and developing

Delia Neuman is assistant professor, College of Library and Information Services, University of Maryland, College Park, Maryland 20742-4345. The Council on Library Resources Cooperative Research Grant Program supported the research reported in this paper. The author wishes to thank two University of Maryland, College Park (UMCP) staff for their contributions to the project and their suggestions for this article: Rebecca Jackson, UMCP Libraries Coordinator for Instructional Services and coprincipal investigator for the project, and Sandra Dwiggin, doctoral student in the College of Library and Information Services.

effective instruction. The process is generally defined in terms of the specific steps designers follow to create a product. For MAJIK/1, these steps can be divided into two segments. The first six—needs analysis, learner analysis, specification of goals and objectives, development of test items, selection of the delivery medium, and development of materials and activities—comprised the design phase. The final two steps—formative evaluation and revision—comprised the evaluation phase.

While several authors have suggested an ISD approach to designing bibliographic instruction, none has sought to incorporate techniques of naturalistic inquiry (NI) into that approach.² NI, a research paradigm gaining renewed prominence in all areas of social science inquiry, is generally defined by contrasting it with the so-called rationalistic paradigm that guides more traditional social science research. Thus, NI is characterized by five major differences from the rationalistic paradigm: its focus on "natural" rather than experimental settings, its attempt to generate context-bound insights rather than universal generalizations, its assumption that the researcher rather than any paper-and-pencil or electronic tool is the preferred instrument for data collection and analysis, its emphasis on issues of importance to those who participate in the research rather than on questions posed *a priori* by the researcher, and its reliance on the collection and analysis of verbal rather than quantitative data as the primary source of its conclusions. In MAJIK/1, a particular NI technique—derived by the researcher from the larger NI arsenal and defined by her as "interactive observation"—was the primary strategy used in the formative evaluation.

This paper describes the MAJIK/1 project in an attempt to demonstrate the potential effectiveness of combining ISD and NI in the design of library instruction materials for undergraduates. Complete details of the effort appear in the final project report, which is available upon request.³ This paper has two pri-

mary foci: first, it highlights the most notable illustrations of the use of ISD in the project and, second, it concentrates on the contribution of the interactive-observation strategy to the project's formative evaluation phase.

DESIGN OF MAJIK/1

Step 1: Needs Analysis

Needs analysis, the attempt to identify the gap between actual and desired learner performance, is designed to ensure that ISD projects are undertaken to meet genuine instructional needs that are clearly understood and thoroughly defined. The experience of designing MAJIK/1 underscores the significance of this critical but often neglected step because the actual instructional need was not apparent at the beginning of the project but revealed itself as the process evolved.

The UMCP Library Instruction Program for undergraduates is comprehensive but consists primarily of two one-hour instructional sessions. The first, an introduction to basic library resources and their uses, is offered in conjunction with the freshman composition program. The second, an explication of more advanced library research skills, is offered in conjunction with the junior composition program. Problems identified by UMCP Libraries staff responsible for the second session suggested the general need for the module: these staff consistently encountered students who were not ready to learn the higher-level concepts included in the junior curriculum. Many of the students had not mastered the basic concepts covered in the freshman component. The staff was therefore forced to spend its limited instructional time covering these basics rather than addressing such topics as the formulation of successful search strategies. In order to address this problem, the UMCP Libraries System Associate Director for Public Services convened the UMCP Library Education Committee in the spring of 1988.⁴

Charged originally with improving the junior component of the Library In-

struction Program, the committee initially focused on the instructors' experiences in that setting. Discussion, however, soon began to focus on improving the freshman component. Committee members reasoned that a point of achievement at this level is a prerequisite to successful instruction for juniors. Ultimately, however, the committee recognized that the key instructional problem did not necessarily involve either the freshman or the junior component. Transfer students and students who place out of the freshman composition requirement do not necessarily encounter the basic concepts covered in the freshman component; other students do not necessarily use those concepts until two years after instruction. Therefore, many juniors' lack of appropriate background is clearly extraneous to the quality of the freshman component. The committee concluded that the primary need was not a revision of the freshman or the junior program but the development of an intermediate instructional experience for any students who had to master basic concepts before they could profit from advanced instruction.

Step 2: Learner Analysis

Unlike the needs analysis phase of the project, the learner analysis for MAJIK/1 was straightforward. The committee identified the general audience as juniors taking the UMCP's required upper-level composition course, which includes a requirement for a paper involving library research. More specifically, the audience would be transfer students, students who had placed out of the required freshman composition course, and other students who wanted to refresh their skills.

This broad range of students precluded any finer delineation of learner characteristics. Although students were sure to vary widely in the important characteristics of age, prior learning experiences, special abilities and disabilities, and specific entry behaviors, the nature and extent of such variations within a large group were both unknowable and beyond the scope of a single

package to accommodate. Consequently, the materials were developed at a general level to make them accessible to a broad audience.

Step 3: Specification of Goals and Objectives

Step 3 was similarly straightforward, consisting of committee members identifying the concepts students should master before encountering advanced instruction. Two committee members who became the primary members of the instructional design team for MAJIK/1 translated these concepts into the goals and objectives that provided the framework for the remainder of the project. As shown in appendix A, four major categories of goals and objectives defined the four major components of the final materials: introduction to periodical indexes, using periodical indexes, using the UMCP Serials List, and locating periodicals in UMCP Libraries. For the purposes of this paper, the objectives have been selected and condensed from their original, more UMCP-specific form in order to highlight their scope and detail.

Step 4: Development of Test Items

Thirty-five test items based on the objectives for MAJIK/1 were devised for the formative evaluation of the materials. These items were compiled into simple pre- and posttests that were administered to students in an attempt to determine the contributions of the program to their learning.

Step 5: Selection of the Delivery Medium

Several considerations merged to suggest HyperCard as the most appropriate delivery mode for MAJIK/1. First, because not all students need elementary instruction, an independent, stand-alone module seemed the best solution to the instructional problem. Although other independent learning formats were considered (for example, videocassette), computer-assisted instruction (CAI) was ultimately chosen because of its individualization, self-pacing, immediate feedback, and flexible scheduling.

CAI enables individual students to progress through the presentation of concepts and the completion of practice exercises at their own rates rather than at the pace dictated by large-group instruction. Moreover, well-designed CAI allows students to make choices about the sequence they will follow and, in some instances, the concepts they will study rather than requiring them to proceed according to the needs of a larger group. The immediate feedback provided for individual answers avoids misleading students and allows them to monitor the success of their own learning. Finally, because CAI can occur at any time the hardware is available—for example, in an all-night computer lab—students can arrange their own instructional time without regard to the constraints imposed by class schedules. For all these reasons, the committee decided to make MAJIK/1 a CAI module available in several campus locations, including a lab in the UMCP Undergraduate Library. Students could be assigned to complete the package independently before the library instruction session, freeing instructors to use their limited class time to focus on more advanced library research topics.

Computer-assisted instruction (CAI) was ultimately chosen because of its individualization, self-pacing, immediate feedback, and flexible scheduling.

HyperCard is the innovative software that allows Macintosh computers to present CAI (and other kinds of programs) in a nonlinear, associational form rather than in the hierarchical structure inherent in traditional software. Because users move through HyperCard programs directly from one segment to another rather than through a series of segments linked in a hierarchy, HyperCard offers especially rapid and flexible movement through information according to individual preferences and needs. HyperCard was chosen for deliv-

ery of MAJIK/1 in order to exploit this instructional potential, to provide appropriate software for new Macintoshes that had recently been purchased by the UMCP Libraries, and to allow the designers to explore the possibilities of this exciting new format as they relate to library instruction.

Students could be assigned to complete the package independently. . . freeing the instructors to use their limited class time to focus on more advanced library research topics.

HyperCard programs are called "stacks," and individual screens are called "cards." Users move through stacks by using the Apple mouse to move the cursor to a particular area of a card called a "button" and depressing the panel on top of the mouse to "click on," or select, that button; the program then moves directly to the program segment indicated by the button. A button can be a special typeface (such bold) or an icon, a visual symbol of a program segment. In MAJIK/1, for example, the question mark icon is the button for the "help" segment. Students can click on this button to move to the card that reviews general concepts important to the program.

Figures 1 through 4 show how MAJIK/1 takes advantage of HyperCard through a structure that allows flexibility of movement across and within components. Figure 1, the table of contents card, shows that students may choose to go through one, two, three, or all four segments of the package in any order. Students may also proceed in a linear fashion by clicking on the "next" and "back" buttons to move forward and backward through the cards in sequence. Figure 2, which contains all the major icons used in the program, shows a variety of options. At almost any point in MAJIK/1, students may leave one segment and go to another by clicking on the icon for the desired destination. Students may also click on the "1" icon to

CONTENTS

**Table of Contents**

(Click on the boldface word and you will go to that section).

Introduction

Periodical Indexes

UMCP Serials List

Where to Find Periodicals




Back Next


Figure 1. Table of Contents


You have finished the Introduction.



Remember --

To go to the section on Periodical Indexes click on the  button.

To go to the section on the UMCP Serials List click on the  button.

To go to the section on Where to Find Periodicals click on the  button.

1

?



CONTENTS



Card one

HELP

Serials list Where to go

Back Next

Figure 2. Major MAJIK/1 Icons

If you are just beginning to use periodical articles for research, start with the section called Periodical Indexes.

You will learn how to:

- choose a **periodical index**,
- choose appropriate **subject headings**,
- identify the items within each **citation**,
- find periodical titles on the **UMCP Serials List**,
- locate periodicals within the **UMCP Libraries System**.

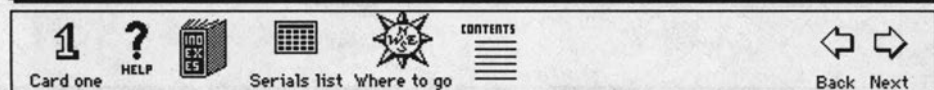


Figure 3. Boldface for Definitions

Periodical Indexes

11

5. Safety in engineering design and construction

- a. **National Newspaper Index**
- b. **Art Index**
- c. **Applied Science and Technology Index**

☒ Click on the button for the right answer.

6. Microcomputer applications in business

- a. **Business Periodicals Index**
- b. **Applied Science and Technology Index**
- c. **Reader's Guide to Periodical Literature**

☒ Click on the button for the right answer.

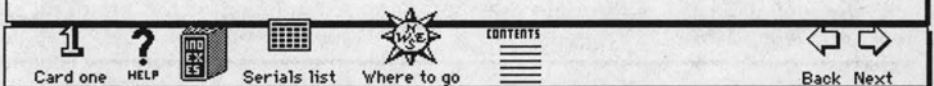


Figure 4. Buttons for Checking Answers

return to the title card, the "help" icon to review general program information, or the "contents" icon to return to the table of contents card. This card serves as an orientation point for students, a familiar home base to which they can return at any time to reenter any component of the program. Figure 3 shows that, within components, students may click on boldface terms and phrases to move to definitions of key concepts according to their own individual needs for information. Figure 4 shows that they may click on the icon of the button to check their answers in the practice exercises. Thus MAJIK/1 provides a variety of options for movement within and across segments. This structure capitalizes on the advantages of CAI in general and HyperCard in particular to enable students to determine their own paths through the material and to tailor the time spent with the program to best meet their own needs.

Step 6: Development of Materials and Activities

The majority of the MAJIK/1 development time involved creating the prototype HyperCard materials. While this is typical of any ISD project, the composition of the MAJIK/1 design team led to an interplay that is not typical of ISD projects but that was a strength of this one. The subject matter expert (the UMCP Libraries Coordinator for Instructional Services) was experienced in instructional techniques as well as content; the instructional designer (a faculty member of the UMCP College of Library and Information Services) was knowledgeable about library issues as well as about instruction; and the technical support specialist (a programmer who was also completing an M.L.S.) brought content knowledge as well as programming expertise to this role. Although project tasks were divided according to the traditional functions of each of these roles, the particular backgrounds of the team members enhanced their collaboration throughout the development of MAJIK/1.

This development occurred in four stages, each corresponding to one of the four content areas covered by the materials: introduction to periodical indexes, using periodical indexes, using the UMCP Serials List, and locating periodicals in UMCP Libraries. Each component includes the presentation of the appropriate content and instructions for navigating in a HyperCard environment. The two middle components, which comprise the major portion of the instruction, include exercises in which students actually use the concepts presented. The total package is comprised of approximately 230 cards: eighty containing primary instructional information and 150 containing definitions, answers, and similar supplementary material.

EVALUATION OF MAJIK/1

Step 7: Formative Evaluation

During the summer of 1989, three composition classes at UMCP participated in the formative evaluation of MAJIK/1. One class served as a pilot for the evaluation processes and instrumentation, while the other two furnished the data upon which revision decisions were made. Twenty-four students provided pre- and posttest data; twenty-eight provided naturalistic data through the interactive observations that were the heart of the evaluation strategy.

Data Collection

After hearing an explanation of the project and completing the pretest, participating students used the materials while a doctoral student from the College of Library and Information Services conducted the interactive observations. Upon completion of the program, students took the posttest.

The pretest-posttest strategy is typical of formative evaluation approaches, while the interactive-observation strategy is not. Derived from the principles and procedures of naturalistic inquiry (NI) as described by Egon Guba, Yvonna Lincoln and Egon Guba, and Delia Neu-

man, the strategy requires the researcher to interact freely with the students as they use the prototype version of instructional materials.⁵ For this project, the strategy involved three tactics: interrupting students as they used the package to ask about problems they were encountering; questioning them upon completion of each component of the program; and interviewing them upon completion of the entire experience to capture their insights about strengths, weaknesses, and necessary and desirable improvements.

The observer had been trained specifically for this project and used a protocol designed to structure both her observations and the planned analysis of the data. The two-page protocol contained six sections: an identification section for the student's name and the date and time of the observation; a summary section for the student's summary comments; and one section for each of the four major content areas of the program. Items within those sections addressed whether the section had been selected; what strengths and weaknesses the student had found in the section's presentation of concepts and tasks; what strategies the student had used to complete the section; what comments and suggestions for revision the student could offer; and what comments and suggestions the observer could make based on the observations.

The use of NI data collection strategies in a contrived setting like an ISD evaluation is inconsistent with one of the basic tenets of NI—that the paradigm is best used to investigate phenomena that occur in natural settings. Using interactive observations capitalizes, however, on several other NI tenets—that individuals' perceptions and experiences are the most important data and that interaction between the researcher and the participant yields the best understanding of those perceptions and experiences. Incorporating naturalistic strategies into formative evaluation thus enables the instructional designer to get maximum revision information from learners.

In the case of MAJIK/1, the approach produced the most important information derived from the evaluation: that students had more difficulty navigating the package than they had mastering its content. The design team had not anticipated this difficulty, and, consequently, did not include it in the categories in the observation protocol. Nevertheless, the observations revealed that navigation was the most important area to be addressed during the program's revision. If the evaluation had relied only on the pre- and posttests, which addressed the program's content, the most serious flaw in the materials, which related to the processes required to traverse that content, might have been overlooked.

Data Analysis

Data analysis proceeded along two fronts: statistical treatment of the pre- and posttest scores and naturalistic assessment of the observational data. As is appropriate in formative evaluation, the evaluation design involved neither randomization nor a control group, and the statistical analysis attempted only to draw general inferences about the instructional effectiveness of the materials for the participating students.⁶ The analysis of the basic differences between pre- and posttest scores for the twenty-four students for whom such data were available revealed a modest gain, an increase of approximately 15 percent in mean scores, suggesting that MAJIK/1 has promising instructional value.

Because of the small number of students (28) observed using the material, the observational data were analyzed manually rather than by computer. Preliminary data analysis consisted of creating tables that displayed the data for each student according to each of the categories in the observation protocol. Final analysis involved summarizing this information by category (including the new "HyperCard" category revealed during the observations) and drawing the conclusions and implications described below. In contrast to the encouraging but cursory result provided by the pretest-posttest analysis, analysis of the

observational data yielded a number of specific and incisive suggestions for revising MAJIK/1.

Most significantly, the analysis revealed the details of students' difficulty in navigating the program. Initially, for example, several students were unfamiliar with the standard HyperCard notions of clicking, buttons, and icons and had to be instructed by the observer. A quarter of the students expressed dismay about the amount of navigational material—particularly icons—they were expected to know in order to use the program: "We're supposed to remember all these?" A number of students also failed to remember that clicking on a boldface item would lead to its definition, and several made navigational errors due to their unfamiliarity with moving through HyperCard material: "How do you get back to the...[e.g. the help] section?"

Other findings emerged from the analysis of the observational data as well. Many students were pleased with the MAJIK/1 practice exercises. Students gave evidence of active engagement (e.g., nodding their heads as they proceeded) and offered such positive comments as "good," "helpful," and "There were enough exercises to make you feel comfortable with the material." The number and tenor of students' comments suggest that the exercises are a useful and attractive feature. The presence of both behavioral and verbal data engenders more confidence in that finding than would be warranted by similar survey or questionnaire data.

However, several students found the directions for completing the exercises unclear, indicating that these should be revised. The primary source of students' confusion seems to be the design of the exercises rather than the directions themselves. The exercises are a series of multiple-choice questions with lettered options and an instruction to answer each question mentally and then click on a button to confirm the correctness of the answer. Almost half the students, however, initially tried to enter the letters of their choices, expecting the program to

accept and judge their responses in the now-familiar format of comparable CAI tasks. Apparently, because the MAJIK/1 task ran counter to their expectations, it initially disconcerted the students. They overcame their confusion readily, however, suggesting that the problem is a minor one.

Almost all students' summary comments about MAJIK/1 were positive. Students focused on such features as the program's good graphics (13 comments), clear text (10), helpful practice exercises (9), self-pacing (7), and ease of movement within the package (5). Students' general comments focused on the informative, useful, easy-to-use, and creative nature of the materials, with one student commenting on the good balance between text and graphics and another pronouncing the program "very worthwhile." One student noted that "[I] learned as much from the module as I had in class."

Nine students in the group explained that the materials had been a review for them, while the others did not offer that information. Several suggested that the package would be good for freshmen, sophomores, and transfer students. One recommended that it be compulsory for freshmen and another wished it had been available "when I was a freshman."

Not all summary comments were positive: five students criticized the amount of detail in the program, five complained that the icons are difficult to remember, three protested the amount of time it took to complete the package, and two noted confusion over the use of boldface. And as one candid critic noted, "The only reason a person would go through all this would be if the professor made them."

In summary, both statistical and naturalistic analyses of student performance suggest that the prototype package effectively met the needs it set out to address. In particular, students' comments and behaviors indicated that the limited number of students who used the materials found them attractive, useful, and reinforcing. More importantly for this project, the level of detail provided by

the analysis of the observational data ensured that the MAJIK/1 revisions directly and thoroughly addressed the most problematic aspects of the package.

Step 8: Revision

Drawing upon this analysis, the design team incorporated a number of revisions to improve the package's navigability for all students—even those unfamiliar with HyperCard. Brief labels were added to the icons, enhancing their visual stimulus with a written one. Several icons were made more representative of the functions they symbolize. Hints and prompts about the meanings and uses of the various buttons were incorporated directly into appropriate screens to serve as reminders throughout the package.

Most importantly, an optional tutorial explaining the features of the program and suggesting navigational strategies was included at the beginning. The tutorial includes instruction in the meanings and uses of buttons and both graphic and verbal information designed to enhance students' abilities to proceed independently. An overview of the entire package as well as overviews of individual components were included to help students develop an appropriate conceptual structure to guide their progress through the materials. Similarly, instructions in such navigational strategies as using the table of contents as a focal point were included to give students a way to orient themselves throughout the program.

CONCLUSIONS

The MAJIK/1 project has resulted in several products of use to library instructors: the program itself, increased knowledge about the application of HyperCard to library education, and a development approach that is potentially the most significant outcome of the project. This ISD/NI approach, combining insights from two separate academic disciplines, provides guidance for the entire development cycle for library education materials. Following this sys-

tematic and straightforward approach can result in materials that effectively meet the needs of the students for whom they are designed.

The MAJIK/1 project has resulted in several products of use to library instructors. . . [including] a development approach that is potentially the most significant outcome of the project.

In the design phase, the use of ISD techniques provided well-grounded analyses of instructional needs and learner characteristics, a precise specification of relevant goals and objectives, a writing of test items directly related to those goals and objectives, and a systematic development of prototype materials designed to address these goals and objectives for the identified learners. Moreover, the "team" approach common to ISD efforts led to the collaboration of experts in three areas—library education, instructional message design, and HyperCard programming—to ensure that all appropriate areas of expertise were tapped. The iterative process characteristic of ISD guaranteed that all three developers would review and comment upon one another's efforts, ensuring that the prototype reflected the insights of the group as a whole.

Formative evaluation and prototype revision are inherent in ISD, but formally and extensively employing NI techniques during evaluation in order to get optimal information for revision is a new strategy. In this project, however, drawing upon the assumptions and techniques of NI brought important strengths to the MAJIK/1 materials. Of obvious value are the insights related to specific revisions gleaned through the interactive observations. Even more significant, however, is the discovery of the major deficiency in the original program, the lack of adequate support for navigating the HyperCard materials successfully. Thus, while the more traditional pretest-posttest approach yielded

little information for revision (and none on this important topic), NI provided insight into the revisions that are most likely to enhance the quality and utility of the materials. This insight suggests an area of concern for the designers of other instructional materials in a hypertext format as well: student groups will undoubtedly include learners who are unfamiliar with the terminology, conceptual structure, and navigational possibilities inherent in such a format. Therefore, designers must incorporate features that will enable *all* students to use hypertext packages independently.

The hallmark of NI is its underlying assumption that the individuals in a research study are participants with valuable insights to offer rather than subjects to be tested according to the researcher's own preconceptions and beliefs. The NI strategy used in this study capitalized on this assumption and ensured that repre-

sentative individuals had an opportunity to react to the materials, to identify effective and ineffective instructional approaches within them, and to suggest ways to improve the product. Clearly, incorporating this information into the ISD revision step leads to a more suitable product.

The creation of MAJIK/1 thus provided a test case for combining the techniques of ISD and NI into a new approach for developing and testing an interactive instructional package for basic library education. The MAJIK/1 experience suggests that the basic approach is feasible for similar development projects. And because this project has served as a preliminary validation of the approach, it can be used in similar projects with confidence that the resulting materials will be effective with and attractive to the audiences for whom they are designed.

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6. Kemp, *The Instructional Design Process*, p. 229.

APPENDIX A. MAJIK/1 GOALS AND OBJECTIVES

I. Introduction to periodical indexes

GOAL: The user will describe the nature and purposes of indexes.

OBJECTIVES:

1. The user will define a periodical index and name two different types of periodical indexes.
2. The user will differentiate between a general and a specialized index.
3. The user will state the titles of three different periodical indexes.

II. Instruction in the use of periodical indexes

GOAL: The user will select appropriate indexes and subject headings and identify the elements of a citation in a basic index.

OBJECTIVES:

1. Given a particular topic, the user will select an appropriate general index for that topic and will locate appropriate subject heading(s) within the index for that topic.
2. The user will identify all the elements in a given citation: article author, article title, periodical title, volume, date, pages.

III. The user will match abbreviated journal titles to the full titles.

GOAL: The user will use subject headings, subheadings, citations, and cross references in index entries.

OBJECTIVES:

1. Given a page from an index, the user will identify the subject heading, a subheading, a citation, and a cross reference.
2. The user will follow a cross reference to its referent.

IV. Instruction in the use of the UMCP Serials List

GOAL: The user will identify locations and holdings for any periodical within the UMCP Libraries.

OBJECTIVES:

1. Given a periodical index citation, the user will identify the UMCP Serials List as a source of information to locate that article.
2. Given a periodical title, the user will select the correct microfiche card to be used and will use the index at the top of the card to locate that title on the card.
3. Given a periodical title, the user will determine the call number for that title.
4. Given a specific issue of a periodical, the user will identify the format of that issue (microfilm, microfiche, bound, unbound) and will determine which library/libraries hold the issue.

V. Instruction in the arrangements of periodicals in the various UMCP Libraries

GOAL: The user will determine where in the Libraries s/he can find a periodical.

OBJECTIVES:

1. The user will explain the difference in the ways periodicals are stored in the two largest UMCP Libraries.
2. The user will identify the appropriate strategy for finding periodicals in the other UMCP Libraries.

Selected Reference Books of 1989-90

Eileen McIlvaine



his article follows the pattern set by the semiannual series initiated by the late Constance M. Winchell more than thirty years ago and continued by Eugene Sheehy. Because the purpose of the list is to present a selection of recent scholarly and general works of interest to reference workers in university libraries, it does not pretend to be either well balanced or comprehensive. A brief roundup of new editions of standard works is provided at the end of the article. Code numbers (such as AD540, CJ331) have been used to refer to titles in *Guide to Reference Books*, 10th ed. (Chicago: American Library Association, 1986).

PHILOSOPHY

Dictionnaire des Philosophes Antiques.

Richard Goulet, ed. Paris: Centre National de la Recherche Scientifique, 1989. In progress. Contents: v.1, Abam(m)on à Axiothéa. 838p. 425F (ISBN 2-222-04042-6).

This comprehensive biographical dictionary will prove useful, even to librarians and scholars who lack French for its numerous bibliographic references to both ancient and modern sources. Covering primarily Greek philosophers

from the earliest times to roughly the sixth century, the signed essays in this first volume range from a paragraph to more than 150 pages (for Aristotle) in length. Most entries contain birth and death dates, if known, citations to articles in *Pauly-Wissowa* (Guide DA126), biographical sketches with references to further primary and secondary sources, lists of works with manuscript and textual traditions and recommended or standard editions and translations, and a discussion of the subject's philosophical thought and influence. Longer entries tend to be arranged in outline form, though there is a great deal of variation in style and organization in articles by different contributors.

A notable feature of volume one is the lengthy appendix, which discusses the situation, history, archaeology, religious and philosophical significance, and personalities associated with the Academy in Athens, complete with some maps and illustrations. The volume concludes with name, keyword, and Greek keyword indexes. Recommended for all libraries with extensive collections in classics or philosophy.—B.J.

SEMIOTICS

Nöth, Winfried. *Handbook of Semiotics.* Advances in Semiotics. Bloomington:

Eileen McIlvaine is head of Reference, Butler Library, Columbia University, New York, New York 10027. Although it appears under a byline, this list is a project of the reference departments of Columbia University Libraries, and notes are signed with the initials of these individual staff members: Barbara Sykes-Austin, Avery Library; James L. Coen, Business Library; Mary Cargill, Beth Juhl, Anita Lowry, Robert H. Scott, Sarah Spurgin, Junko Stuveras, Butler Library; Diane K. Goon, Barbara Kemp, Lehman Library.

Indiana Univ. Pr., 1990. 576p. \$57.50 (ISBN 0-253-34120-5). LC 89-45199.

This is a "totally reworked, updated, and largely expanded" (p. x) edition of the author's *Handbuch der Semiotik* (Stuttgart: Metzler, 1985). And unlike some works that begin life in another language, this handbook is written with an admirable clarity and conciseness that greatly enhance its usefulness as a guide to the concepts, schools, terminology, authors, and literature of semiotics. Its approach is encyclopedic and pluralistic, covering both "theoretical and applied semiotics and [extending] from zoosemiotics to anthroposemiotics, including the various branches of cultural and text semiotics" (p. 4).

The arrangement is not alphabetical like a dictionary, but conceptual. There are eight chapters, each divided topically into numbered sections and subsections: History and Classics of Modern Semiotics; Sign and Meaning; Semiosis, Code, and the Semiotic Field; Language and Language-Based Codes; From Structuralism to Text Semiotics Schools and Major Figures; Text Semiotics: The Field; Nonverbal Communication; Aesthetics and Visual Communication. The text combines explanation and discussion with a survey of the literature. Plentiful in-text references guide the reader to key writings on each point, and the seventy-page bibliography of cited works is a valuable guide to the literature itself. The extensive subject and name indexes, as well as the handsome layout and design, further aid the users of this book, whether they be students grappling for the first time with complex topics in semiotics or scholars seeking a survey of ideas or literature outside their particular field of expertise.—A.L.

ENGLISH LITERATURE

Marcuse, Michael J. *A Reference Guide for English Studies*. Berkeley: Univ. Calif. Pr., 1990. 790p. \$100 (ISBN 0-520-05161-0). LC 86-14675.

Harner, James L. *Literary Research Guide: A Guide to Reference Sources for the Study of Literatures in English and Related Topics*. New York: Modern Lan-

guage Assoc., 1989. 737p. \$35 (ISBN 0-87352-182-X). LC 89-12409.

A Reference Guide for English Studies is a comprehensive and impressive guide to English and American literature which includes a considerable amount of information not usually found in guides to English literature: lists of national bibliographies and library catalogs; sections addressing classical and modern literatures; and a chapter devoted to history and ancillae which describes 123 reference works in British and American history, geography, and chronologies, and numerous secondary works.

Physically, it resembles a *Guide to Reference Books* with longer annotations and smaller type. Twenty-four chapters address topics ranging from literature by country, period and genre, to professional topics, bibliography, biography, serials, and archives and manuscripts. Within each chapter, reference works are grouped by topic, and followed by lists of periodicals and "frequently recommended works." The descriptive annotations are well written, and nearly all cite additional works. Coverage is through 1985, with some additional titles from 1986 and 1987; the sections of recommended works, although valuable, suffer from being five years out of date.

The *Literary Research Guide* is more narrowly confined to English literature and is intended to replace Margaret Patterson's *Literary Research Guide* (Guide BD360). It does not give a cut-off date, although I could not find anything here which was not included above. It is complete and well written and suffers only in comparison to the *Reference Guide for English Studies*, which is so inspiring that I think readers will want to begin their research on the spot.—S.S.

LATIN AMERICAN LITERATURE

Forster, Merlin H. and K. David Jackson. *Vanguardism in Latin American Literature: An Annotated Bibliographical Guide*. Bibliographies and Indexes in World Literature, no. 27. New York:

Greenwood, 1990. 214p. \$37.95 (ISBN 0-313-24861-3). LC 90-34103.

Although one of the contributing factors to the burst of Latin American creative writing in the 1950s and 1960s, the avant-garde writers of the 1920s and 1930s have usually been regarded as minor figures. The compilers of this bibliography, both professors of Latin American literature, hope to make these writers more widely known. Based primarily on the holdings of the Benson Latin American Collection of the University of Texas at Austin, this is "an annotated guide to research materials rather than an exhaustive listing of everything ever written by and about Latin American vanguardists" (Intro.). It lists primary material from 1920 through 1935 and secondary material from 1920 to the mid-1980s.

Part I is an introduction to vanguardism in Latin America. The actual bibliography is divided into two sections: the General List, "an annotated gathering of critical and bibliographic materials that documents and supports the multinational approach;" and the National Lists, arranged by country, which provide "categorized information on vanguardist groups, major figures, individual works, and literary journals." This should be an essential purchase for any library with an interest in Latin American literature.—M.C.

Wilson, Jason. *An A to Z of Modern Latin American Literature in English Translation*. London: Institute of Latin American Studies, 1989. 95p. £7.50 (ISBN 0-901145-67-X).

This guide, compiled by a member of the Spanish Department of the University of London, will make identifying English translations of Latin American literature much easier. Arranged alphabetically by author, the guide lists translations of 256 nineteenth- and twentieth-century Latin American writers through mid-1989. The brief entries provide the English title, translator, publisher, and date of the translation. The original titles and dates are also provided, a welcome bonus to anyone who

has used *Index Translationum*. The compiler has also included a useful list of anthologies of Latin American literature in English translation.

This guide could, however, be improved. There are no indexes, so the user must know the author. Poems, essays, and plays in collections are not analyzed. The arrangement of entries under each author is chronological by date of translation which can make finding a specific title by a prolific author somewhat difficult. Yet this is still an extremely useful source in any library where students ask for translations.—M.C.

CINEMA

Armstrong, Richard B., and Mary Willems Armstrong. *The Movie List Book: A Reference Guide to Film Themes, Settings and Series*. Jefferson, N.C.: McFarland, 1990. 377p. \$29.95 (ISBN 0-89950-240-7). LC 89-43692.

Where else could you find lists of films about the "Abominable Snowman" (see also "Bigfoot"), about "Zombies," and on almost any imaginable topic in between, from the sublime ("Angels") to the ridiculous ("Pinball/Video Games")? Or how about films featuring particular characters (Nancy Drew, or Robin Hood) or types of characters (composers, pirates, multiple personalities, or horses)? Maybe you are looking for films set on an island, in a prison, or on the subway (see also "Trains")? Or a film with the secret of "Eternal Youth," or one addressing serious concerns like "Drug Addiction" or "Suicide"?

The list of films under each heading is admittedly very selective and limited primarily to English-language feature films from the 1950s through the 1980s; the *American Film Institute Catalog of Motion Pictures* (Guide BG200), with its extensive subject/motif index, will be much more complete when it is finally finished. But this book is one of the few available sources for people who want to find fiction films "about" something, a query that comes not only from film buffs and trivia fans, but also from film students and scholars interpreting cul-

tural phenomena through their expression in the movies. And, yes, there is an entry for "Librarians," with a list of films and a short commentary in which the authors wryly observe that in spite of exceptions that prove the rule—like Betty Davis' feisty portrayal of "a librarian fired for her refusal to censor a book on communism in the 1956 *Storm Center*"—"it has been difficult for movie librarians to move away from their stereotyped image as shy, conservative bookworms" (p.205). The book could have used a proof reader; *Storm Center* is listed once with the date 1956 (correct) and once with the date 1955 in a single entry.—A.L.

ART AND ARCHITECTURE

Art & Architecture Thesaurus. Toni Petersen, director. New York: Published on behalf of the J. Paul Getty Trust by Oxford Univ. Pr., 1990. 3v. \$250 (ISBN 0-19-5064038/set). LC 89-26479.

The long-awaited publication in printed and electronic formats of the *Art & Architecture Thesaurus* is the culmination of a ten-year project to organize and disseminate a standard, controlled vocabulary for the fields of art and architecture. Modeled on the National Library of Medicine's MeSH thesaurus and prepared according to ANSI and BSI standards, this comprehensive and authoritative reference source, when consistently applied to catalogs and databases of bibliographic and visual materials, will enable its intended users—libraries, museums, archives, historical and other special collections, abstracting and indexing services, and scholars (who have also been its collaborators and contributors)—to "bring about the most comprehensive retrieval of information possible on a particular topic by linking terms whose meanings are related" (v.1, p.4). The AAT, as it is known, will, when completed, encompass the full spectrum of terminology for art and architecture of the Western world from the ancient period to the present day.

The printed format has been issued in three volumes comprising 47,000 terms in twenty-three of the projected forty hierarchies (conceptually ordered arrangements showing broader and narrower relationships). The hierarchies are themselves grouped under seven major areas or facets which constitute subdivisions of the terminology. These facets include: Associated Concepts (such as scientific, religious, and artistic concepts); Physical Attributes (shapes, colors, sizes, etc.); Styles and Periods; Agents (people and organizations); Activities (including the disciplines in the humanities, social sciences and "hard" sciences, functions, such as expertizing, events such as ceremonies, and processes or techniques, such as sketching, printing, or bookbinding); Materials (brick, tile, wood, etc.); and Objects both in the built environment, such as furnishings and equipment, and as forms of visual and verbal communication (e.g., drawings, photographs, and written document types). These are fully displayed in volume 1 by the aid of a thumb index for quick reference.

Each of the hierarchies within the facets is introduced with a description of its scope, organization, relation to other hierarchies, descriptor form and use, and the number of descriptors and has been given a two-character code further subdivided numerically to clarify its relationship within the hierarchy. In volumes 2 and 3 the terms are arranged alphabetically using standard thesaurus conventions to link alternate and lead-in terms, provide source and scope notes, classification codes, and hierarchy line number. A lengthy "History of the AAT," along with a description of the project, a user's guide, and a comprehensive list of sources are also provided in volume 1. All give clear evidence of the wide range of scholarly expertise and careful attention to the design, construction, and intellectual integrity of this critical and much-needed codification of the "rich and uncontrolled, that is to say, inconsistent" vocabulary of the arts (v.1, p.3).

The three-volume printed set and electronic edition of the AAT (available on

floppy disks and appearing simultaneously as an authority file in RLIN) are the first published releases of the ongoing AAT project, which is an operating unit of the J. Paul Getty Trust's Art History Information Program (AHIP). Seventeen additional hierarchies are under development and will be published on a regular basis by Oxford University Press as supplementary volumes, which will also include new terms and changes to the existing volumes. "Completion of all projected hierarchies is anticipated within the next few years, and a new edition will then be released that includes the entire set" (v.1, p.2l).—B.S.-A.

POPULAR CULTURE

Historical Dictionary of World's Fairs and Expositions, 1851–1988. John E. Findling, ed. New York: Greenwood, 1990. 443p. \$75 (ISBN 0-313-26023-0). LC 89-17217.

Despite the financial difficulties of recent events such as the New Orleans Louisiana World Exposition (1984), the world's fair continues to provide a fascinating mix of commerce and commercialism, rampant nationalism and international understanding, high art and incredible kitsch. With fairs planned for the Columbus quincentennial in both Genoa and Seville, the international exposition remains quite a robust form of entertainment, enlightenment, and boosterism. This dictionary pulls together information on ninety-six exhibitions for the historians and students of architecture, art, technology, industry, or popular culture.

The fairs, beginning with the Great London Exhibition in 1851, are described in signed chapters arranged in chronological order. Each chapter details the planning, financial opportunities and reverses, local and national government involvement, architecture and attractions, international participation, and local and worldwide legacies of the fairs, complete with bibliographies and a few illustrations. Appendixes include a description of the governing Bureau of International Expositions, tables of fair

statistics, and lists of fair officials, smaller fairs not included in the chapters, fairs which were planned but not put on, and forthcoming fairs. A general bibliography discusses works which deal with the nature and history of fairs, and the detailed index is particularly useful for locating the odd pavilion (Futurama), entertainer (Sally Rand), or theme ("Century of Progress"). The only disappointment with this volume is the paucity of photographs and illustrations. Otherwise, this *Historical Dictionary* is at once a fun browse and a helpful beginning point for students and scholars.—B.J.

Melton, J. Gordon. *New Age Encyclopedia.* Detroit, Mich.: Gale, 1990. 586p. \$59.50 (ISBN 0-8103-7159-6).

J. Gordon Melton and the members of the Institute for the Study of American Religion, authors of such notable reference works as the *Encyclopedia of American Religions* (Guide BB57), have produced a handy, one-volume guide to the various spiritual and social phenomena, personalities, and institutions which the new age has spawned. While previous works on new age movements have been either naive and unscholarly or openly hostile, this *New Age Encyclopedia* "moves away from the polemical stances taken by evangelical Christians, skeptics, and others to provide a balanced, objective and comprehensive overview of the New Age Movement as well as information about its many ideological and structural components and major leaders" (Introd.). The result is a succinct and unsensational discussion of topics as diverse as Ignatius Donnelly, dolphins, and Dianetics.

The main portion of the *Encyclopedia* consists of alphabetically-arranged, signed entries on concepts, persons, and organizations which range in length from a paragraph to several pages. Each entry includes at least one bibliographic reference for further information. Many of the topics covered are fairly contemporary (Seth, harmonic convergence, macrobiotics), and often addresses are provided for extant organizations. How-

ever, special effort is given to the description of the historical context and development of philosophies and phenomena. For example, "channeling" and the use of crystals in magic and healing are both traced back to ancient times.

Preceding the encyclopedia entries is an introductory essay on the origins and growth of the new age movement and a chronology. An appendix lists educational institutions which offer accredited and nonaccredited programs in new age subjects, and an index provides access to persons, topics, and institutions which are discussed within the text of the encyclopedia entries.

A recent trade publication by the same authors, the *New Age Almanac* (New York: Visible Ink, 1990. 479p.), contains essentially the same information arranged in chapters with one long bibliography in the appendix and no index.

The New Age Encyclopedia should prove useful in almost any library, covering, as it does, topics which are often too obscure, too recent, or too short-lived to be found in most standard reference sources.—B.J.

WOMEN'S STUDIES

Carter, Sarah. *Women's Studies: A Guide to Information Sources*. London, New York: Mansell; Jefferson, N.C.: McFarland, 1990. 278p. £35 (ISBN 0-7201-2058-6). LC 89-39974.

This British guide to women's studies differs from Susan Searing's *Introduction to Library Research in Women's Studies* (Boulder, Colo.: Westview, 1985) in several ways. It has an international focus and includes many more titles published outside the United States; it only lists works dealing specifically with women; for each topic it lists periodicals, organizations, and resources, in addition to bibliographies, encyclopedias, and indexes. Nearly 1,100 English-language works published between 1978 and 1988 are cited, with some earlier and more recent works included. It is arranged in three main sections: general material (e.g., reference sources, biographical in-

formation, and women's studies); Women in the World (subdivided by continent, region, and country); and Special Subjects (thirteen topics including arts and media, education, history, leisure, mythology and religion). A particularly useful feature is the listing of titles under more than one subject, with appropriate annotations ranging from two lines to two paragraphs. *Women's Studies* is indexed by author, title, and subject and is recommended to libraries supporting graduate research in women's studies or which have very strong international collections.—S.S.

Kahn, Ada P. and Linda Hughey Holt. *The A-Z of Women's Sexuality*. New York: Facts On File, 1990. 362p. \$24.95 (ISBN 0-8160-1996-7). LC 89-28211.

This dictionary lists terms related to various aspects of woman's sexual nature, ranging from obstetrics and gynecology to sexual behavior and psychological development. The majority of the work is devoted to the alphabetical entries, which vary from one line to several pages in length. Coverage is broad and includes technical medical terms, proper names, common and slang terms, historical and mythological references, and some social issues. The authors, both with credentials in the health professions, provide factual treatments of even the most controversial topics, such as abortion.

In addition to the dictionary section, a bibliography lists books and journal articles for further reading. This section is divided into broad topics such as "feminist viewpoints," "childbirth," and is arranged alphabetically. Most of the references are from the 1970s and 1980s, but few are more recent than 1988.

The liberal use of cross references in the body of the work is enhanced and expanded by a detailed index which provides access to references within the entries. Although there are some inconsistencies in the cross references and indexing, they are relatively minor. Overall this is a clear presentation of information that will be of interest in most academic libraries.—B.K.

SOCIOLOGY

Zollar, Ann Creighton. *Adolescent Pregnancy and Parenthood: An Annotated Guide*. Reference Books on Family Issues, no. 16; Garland Reference Library of Social Science, no. 523. New York: Garland, 1990. 224p. \$36 (ISBN 0-8240-4295-6). LC 89-25596.

This is a most welcome annotated bibliography of recent psychological and sociological literature on the social problem of adolescent pregnancy and parenthood in the United States. Ann Creighton-Zollar, associate professor of sociology at Virginia Commonwealth University, has selected and organized these materials for novices in the field (student, researcher, or professor), as well as for graduate students in sociology who need to be aware of how various disciplines—social work, public health, nursing, public affairs—deal with this problem.

Because the emphasis is on materials readily accessible to the student, the bibliography has been limited to English-language books, chapters in books, and periodical articles, the majority of which have been published between 1970 and 1989; there is a final section listing the tape holdings of the Data Archive on Adolescent Pregnancy and Pregnancy Prevention, sponsored by the U.S. Office of Population Affairs. The author's initial search was limited to *Sociological Abstracts* and *Psychological Abstracts*, then to a search for the most frequently cited references; this accounts for the heavy preponderance of periodical articles among the 787 citations. There is a detailed subject arrangement comprised of twelve sections, each section subdivided by format, with the sections on "Social Consequences" and "Services" further subdivided into topics such as coping and family support, social costs, family planning, pregnancy prevention, and services for pregnant and parenting teens. There is an author index.

Researchers may question the author's decision to exclude items "expensive to obtain (like dissertations)" or "difficult to obtain (like some govern-

ment documents)" (p. xi); librarians may regret the absence of cross- and see-also references (each item is listed only once), and wonder what titles would have been added by a search of *Inventory of Marriage and Family Literature* (Guide CC216n). But when you are confronted by the question "Why has so little been written on the adolescent father?", you will be pleased to lay that myth to rest by turning to pages 169-85 of this book.—D.K.G.

AFRO-AMERICAN STUDIES

Black Americans Information Directory 1990/91. Darrin L. Smith, ed. Detroit, Mich.: Gale, 1990. 424p. \$69.50 (ISBN 0-8103-7443-9, ISSN 1045-8050). LC 90-648616.

"The purpose of the *Black American Information Directory* (BAID) is to provide a comprehensive source of information on organizations, programs, faculties, publications, and other resources for, and about, Black Americans (Intro.). This first volume is compiled from other Gale publications, including *Awards, Honors, and Prizes* (Guide CB313), *Directories in Print* (CH256), *Directory of Special Libraries and Information Centers* (AB53), *Encyclopedia of American Religions* (BB57), *Encyclopedia of Associations* (CA125), *Gale Directory of Publications* (Ayer's) (AE31), *Newsletters in Print* (AF30), *Publishers Directory* (AA355), *Research Centers Directory* (CA127), and *Video Source Book* (AA540). The entries are arranged in seventeen chapters, covering topics such as "Colleges and Universities," "Library Collections," and "Radio and Television Stations." A name and keyword index concludes the volume.

While many librarians and readers will find it convenient to have information from such a wide variety of publications in one easy-to-use source, the selection criteria for BAID seem at times uneven or undefined. For example, in the "Videos" section, many items are included merely because they have one or two black performers (e.g., Lena Horne in "Ziegfeld Follies") rather than because they address any specific African

American theme or issue. The section on "Black Studies Programs" merely lists colleges and addresses without any description of their offerings or requirements. Librarians may wish to use *Black Americans Information Directory* as an index or a pointer to reference works which provide more complete descriptive listings, such as Gale's own *Negro Almanac: A Reference Work on the African American* (5th ed. Detroit, Mich.: Gale, 1989) in which there is considerable overlap in coverage.—B.J.

Rice, Mitchell F. and Woodrow Jones, Jr. *Health of Black Americans from Post Reconstruction to Integration, 1871-1960: An Annotated Bibliography of Contemporary Sources*. New York: Greenwood, 1990. 206p. \$39.95 (ISBN 0-313-26314-0). LC 89-78161.

This volume, the latest in Greenwood's *Bibliographies and Indexes in Afro-American and African Studies*, lists 592 citations to contemporary sources which should prove useful to both social and medical historians. The selective time period is deliberate; pre-1871 material is excluded because little was published on this topic before emancipation and reconstruction, and it was only after that time that "blacks began to leave the plantation system where a modicum of health care was provided and ventured into a social order where little or no health care was available to them" (Introd.). Post-1960 publications have been listed in a companion volume, the authors' *Black American Health* (New York: Greenwood, 1987. 140p.).

The bibliography is preceded by an introductory essay which sketches topics such as sanitation, housing, and working conditions during the period in question. The citations are divided into three main sections by publication date: 1871-1919, 1920-1950, and 1951-1960; entries are arranged alphabetically within each section. Almost all the citations are to articles in medical or health journals, and the majority (about two-thirds of the entries) falls into the 1920-1950 section. The volume concludes with author and title indexes.

Though most of the material cited in *Health of Black Americans* is quite clinical in nature, it should provide researchers in African-American studies with interesting sources from a perspective outside the humanities and social sciences.—B.J.

GERMANS IN THE U.S.

Tolzmänn, Don Heinrich. *Catalog of the German-Americana Collection, University of Cincinnati*. Munich and New York: Saur, 1990. 2v. \$215 (ISBN 3-598-41241-X). LC 90-175005.

The German-Americana Collection of the University of Cincinnati is one of the largest in the country, containing primary and secondary material relating to German-Americans throughout the United States. The collection is based on the private library of Dr. Heinrich Fick, a nineteenth-century Cincinnati educator, and supplemented by other notable acquisitions. This catalog is the result of a grant to the German-Americana library, which allowed it to index its collections for the first time. The compilers also indexed fifteen important German-American, nineteenth- and twentieth-century journals.

It has a classified arrangement, which unfortunately could be more detailed. For example, the sixteen pages listing information on the forty-eighters are arranged alphabetically by author. To find all the material on Carl Schurz, the reader either has to look at every entry or constantly to refer to the index. Nevertheless, this is a welcome supplement to Henry Pochmann's *Bibliography of German Culture in America to 1940* (Guide CC331) and Arthur Schultz' *German-American Relations and German Culture* (Guide CC331a).—M.C.

STATISTICS

International Directory of Non-Official Statistical Sources. London: Euromonitor, 1990. 155p. £85 (0-8633-8354-8). LC sn90-39095.

A companion volume to Euromonitor's *European Directory of Non-Official Statistical Sources* published in 1988, the direc-

tory focuses on consumer markets, products, and trends; key industrial sectors such as energy, agriculture, construction, and chemicals; and national economic and business trends. Non-official sources are those not connected with central governments or with international governmental bodies such as UN, OECD, EEC, IMF etc.. The major producers of statistics listed in this directory are trade or professional associations, research organizations, trade journals, periodicals, financial institutions, and statistical databank companies. In order to merit inclusion the sources listed must appear at least once every five years.

Major countries covered are Australasia, Canada, India, Japan, and the United States, with limited coverage provided for twenty-six other countries, and some regions. "Limited" ranges from one to ten cited sources—for fourteen of the included countries there is only one source given for non-official statistics. The strength, therefore, is in the coverage of key countries. A separate list of international sources (regardless of provenance) is included that identifies items where coverage is not confined to a single country.

The body of the directory is an alphabetical arrangement by source. Briefly annotated, with information on supplier, the price is indicated for many titles, but not often enough. A subject index and a geographical index of sources are included. The preponderance of key, country sources makes it a largely redundant acquisition in a well-stocked U.S. business library. A smaller library might be put off by the price.—J.C.

A Guide to Latin American and Caribbean Census Material: A Bibliography and Union List. Carole Travis, ed. Boston, Mass.: Hall, 1990. 739p. \$85 (ISBN 0-8161-0497-2). LC 89-49739.

This bibliography and union catalog of Latin American statistical sources in the United Kingdom covers "censuses of any kind," not just population censuses. It is arranged by country and then chronologically, with an index by geographic name and topic.

The *Guide*, a joint enterprise of eighteen people, lists various types of censuses from forty-one countries: population, labor, manufacturing, mining, agricultural products such as olives or coffee. Each country section begins with a general description of the censuses and in some cases cautionary remarks about using them, followed by lists of specific censuses. Some entries have a note describing the contents and special features. General Latin American censuses are included in the appendix. The Select Bibliography lists useful sources from government document catalogs to journal articles.

Each entry is accompanied by one or more location symbols, which lead to university, public and research institute libraries in the U.K. Although it has a limited use as a union catalog for an American researcher, this would be a good addition to a reference collection for Latin American studies.—J.S.

FOREIGN AFFAIRS

Silverberg, Sanford R. and Bernard Reich. *United States Foreign Policy and the Middle East/North Africa: A Bibliography of Twentieth-Century Research.* Garland Reference Library of Social Science, no. 570. New York: Garland, 1990. 407p. \$50 (ISBN 0-8240-4613-7). LC 89-23452.

Compiled by two academic researchers in the field, the bibliography aims at a comprehensive coverage of the works relating to the U.S. involvement in the region in the twentieth century, especially during the period from World War II to the Reagan administration. The Middle East and North Africa are defined as "the non-Arab states of Israel, Turkey, and Iran and the Arab states of Algeria, Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, North Yemen, Oman, Qatar, Saudi Arabia, South Yemen, Sudan, Syria, Tunisia, and the United Arab Emirates" (Introd.).

The bibliography contains primarily English-language materials in various forms: books, articles, government documents, master's and doctoral theses,

which were published through early 1989. Also included are selected materials on earlier American missionary, educational, and philanthropic activities in the Middle East. The items (3,676 in all) are arranged in alphabetical order by author. There is no title index.

Although it is timely, it could have been a much more useful publication in view of recent U.S. involvement in the region. The bibliography is not well served by the subject index, which is an extremely broad topical index. A half-page list of item numbers without any subdivision under "Israel" or some thirty numbers under "Arab Boycott" would be of small help to the researcher who wants to use this bibliography. If this bibliography, which the editors compiled using Pro-Cite (a bibliographic management program), had been published as a computer-readable bibliography on a diskette rather than in printed form, the indexing would not have been so problematic.—J.S.

SOVIET UNION

A Guide to Scholarly Resources on the Russian Empire and the Soviet Union in the New York Metropolitan Area. Robert A. Karlowich, comp. Armonk, N.Y.: M.E. Sharpe 1990. \$45 (ISBN 0-87332-619-9). LC 89-24314.

The New York metropolitan area is home to one of the country's richest collections of research material for the study of the Russian Empire and the Soviet Union. The collections are housed in a variety of academic and research libraries, museums, scholarly institutes, fraternal and cultural organizations, government bodies, corporations, and held by private individuals. Until now, however, there has been no reference guide [analogous to the *Smithsonian Scholar's Guide to Washington* (Guide, DC552)] specifically tailored to assisting researchers in coordinating their research. It was with the aim of addressing this need that noted Slavic bibliographic specialist Robert Karlowich was commissioned by the Social Sciences Re-

search Council to compile this work. The result of his efforts is an outstanding compendium, one that every library supporting research on Russia and the Soviet Union and many scholars in the field will want to own. In addition, any Russian or Soviet researcher planning to do work in the New York area will certainly want to consult this volume.

The area chosen for coverage extends to a fifty-mile radius of midtown Manhattan, and so includes such important institutions outside the city proper as Princeton University, West Point, and St. Vladimir's Seminary. Descriptions are provided for 153 separate collections (including individual departments within larger research institutions such as the New York Public Library or Columbia University Libraries). The entries, which range from one to several pages in length, provide addresses, telephone numbers, a description of the terms of access, and the facilities available (reading rooms, photocopy machines, etc.), information on the history of the institution, a brief survey of holdings, notes on any special features of the collection, and a listing of any available catalog or finding aid as well as a bibliography of other descriptions of the collection. There is also an excellent name and subject index. The materials covered range widely and include books, manuscripts, recordings, art works, photographs, costumes, and other realia. They document Russian and Soviet history from the Middle Ages to the present and the life of emigré and immigrant communities as well. Represented are institutions as diverse as the New York Public Library, the Museum of Modern Art, the YMCA, the ILGWU, the International Research and Exchanges Board, the New York Life Insurance Co., and at least fifteen private collectors.

At the same time, Karlowich points out, this is but a preliminary survey of resources. Only about half of the institutions originally approached returned the questionnaire supplied to them. As a result, one must still turn, among other things, to Grant and Brown's older and out-of-print *Russian Empire and Soviet Union: A Guide to Manuscripts and Archi-*

val Materials in the United States (Guide AB118a). The Karlowich work is the only study to date to focus exclusively on the New York area, and it provides the most up-to-date and accessible information on all of the leading institutions there. A parallel survey of East European resources in the New York area is now underway and should result in the completion of a companion volume late this year or early in 1992.—R.H.S.

de Mowbray, Stephen. *Key Facts in Soviet History*. Boston, Mass.: Hall; London: Pinter in assoc. with John Spiers, 1990. In progress. Contents: v.1, 1917 to June 22, 1941. 386p. \$40 (ISBN 0-8161-1820-5). LC 90-201110.

This work, inspired no doubt by the current upsurge of interest in the USSR, seeks to provide a chronological outline in English of the major events and developments in the history of the Soviet Union, designed largely for the nonspecialist reader. As such, it appears to have no real counterpart and is thus a welcome addition to the reference tools available for Soviet area studies, political science, and history. To date, one of two projected volumes has appeared, covering the period from the revolutions of 1917 to the Soviet entry into World War II. The greatest coverage is naturally given to more easily dated domestic political events and foreign affairs, but pains are taken to cover economic, social, and, to a lesser extent, cultural developments as well.

The work is based largely on English-language sources and, hence, to a slightly lesser extent, secondary sources, all of which are listed in an extensive bibliography at the end of the volume. (It should be noted, however, that those sources represent an impressive cross-section of the latest English-language historiography.) The author recognizes the additional difficulty this reliance on secondary literature may pose for the already difficult task of precisely dating the events of Soviet political history, but he argues, convincingly, that the dates

offered here are no doubt "accurate enough for most practical purposes" (Intro.). More regrettably, however, Mowbray's intended nonspecialist audience has led him to omit any citations to specific sources at the end of individual entries (although reference is generally made to an author or authors when there is some controversy or speculation surrounding a particular issue).

The work supplies much more than a simple chronicle of events. Admirable care is taken to provide background material in order to explain the significance of many events and even to indicate some outstanding questions of interpretation, so that individual entries can range from one or two lines to two or three pages in length. For this reason, the chronology will probably be most fruitfully used by those who want to read through the pages describing a certain period in order to gain a better sense of the chronological interrelation of developments on various fronts. The work is helpful also for those who might want to zero in quickly on a certain event whose precise date they do not know.

Indexes of personal and geographical names are provided, but nothing more, making it difficult to locate information quickly (for example, on individual party congresses) or to trace developments relating to the peasantry, the army, or the Orthodox Church. For the same reason, the author's useful summaries of economic and other developments that cannot be easily fixed to a single date are lost to a user who does not intend to wade through all the entries relating to a particular time period. Nor is any use made, in a sometimes lengthy text, of any boldfacing or other typographical variation that might help the reader to zero in on a key name or phrase. One can only hope that a subject index (and ideally, a detailed one) will appear at the end of the forthcoming second volume, for the text does a very good job of introducing, in a schematic yet reasonably sophisticated form, the basic events and issues of the history of the Soviet Union.—R.H.S.

FRANCE

Biographical Dictionary of French Political Leaders since 1870. David S. Bell, Douglas Johnson, and Peter Morris, eds. New York: Simon & Schuster, 1990. 463p. \$75 (ISBN 0-13-084690-2). LC 90-9662.

Where to turn for biographical information in English for French senators, deputies, ministers, political writers, diplomats, journalists, and editors has always been a problem. This is the issue addressed by the *Biographical Dictionary of French Political Leaders* which aims "to be of use to the many people in many countries who are interested in the past and present of the politics of France and who may not always have a reading command of French" (Pref.). Sponsored by the Association for the Study of Modern and Contemporary France, its members helped select names for inclusion as well as contributed individual biographies; the entries show the care with which this was done. Signed articles of one-and-a-half to three columns describe the career and background of each political leader with an indication of how he was/is regarded by his contemporaries. Each entry ends with a bibliography of articles and books in both French and English (English is the preferred language) with notes to identify a definitive study, to point out the lack of any critical studies, the existence of profiles, or the need to use biographies of specific colleagues.

The index offers entries to political organizations, parties, people cited in other entries, subjects of biographies, pseudonyms, and topics. Appendixes give lists of French presidents, prime ministers, post-war Union leadership, and Fifth Republic party leadership.

Of course this is not going to replace the various *Dictionnaire des Parlementaires Français* (Guide CJ297-298) but the purpose is entirely different. The *Dictionary* is intended for English language speakers and for that reason should receive wide use in college and university libraries, as well as in the larger public libraries.—E.M.

Hansen, Arlen J. *Expatriate Paris: A Cultural and Literary Guide to Paris of the 1920s.* New York: Arcade, 1990. 335p. \$24.95 (ISBN 1-55970-018-1). LC 89-6963.

Organized geographically, this guide "offers a mosaic of persons, places, dates, images, incidents, and rumours" (Note to the Reader). Some one thousand addresses of residences, cafes, hotels, galleries, and commercial establishments are presented in clusters within eight major areas of Paris. Entries include information and anecdotes about the people and events associated with each address and about physical qualities of the place itself. Information was gathered from memoirs, biographies, and histories of Paris in the 1920s, as well as contemporary directories. A thirty-page bibliography "lists the major literary works that were composed or published in Paris during the '20s, as well as the expatriate's principal memoirs about the period" (p.277). Nine maps and three indexes (e.g., by person, place or event, and street) facilitate reference use. This guide is informative and entertaining; it would have been even more useful if the sources of each anecdote and entry had been cited.—S.S.

FRANCE—ARCHIVES

The 1979 legislation on archives and the opening of collections relating to World War II have prompted the publication of new and updated catalogues and a general inventory of research tools. The following is a listing of those guides to the French public archives since that time.

The five-volume *État général des fonds* (Guide DC161), a detailed survey of the collections in the Archives Nationales, has been recently completed. Four of the six projected volumes of its companion series, *L'état des inventaires*, have appeared. When completed, it will be a comprehensive list of inventories and other research tools for French public archives as of January 1, 1983, including anything from hand-written registries to printed, analytical catalogs. These two

series are indispensable tools for historical research in France in addition to the enormous compilation of the catalogs of manuscripts in French public libraries, *Catalogue général des manuscrits des bibliothèques publiques de France* (Paris: Ministère de l'instruction publique et des beaux arts, 1885-1975) which are, despite the lack of systematic updating, still very useful.

The two series, *L'état général des fonds* and *L'état des inventaires*, follow the same organization: major chronological divisions and then "série." There is no general index to the set, but the table of the standard classification system used in the French archives and detailed tables of contents in each volume provide access to the section containing relevant material.

Archives nationales. L'état général des fonds. Paris: Archives nationales, dist. by La Documentation française, 1978-1988. 5 v. Contents: 1: L'Ancien Régime. 1978. 95F (ISBN 2-86000-020-8); 2: 1789-1940. 1978. 95F (ISBN -021-6); 3: Marine et Outre-Mer. 1980. 150F (ISBN -025-9); 4: Fonds divers. 1980. 120F (ISBN -026-7); 5: 1940-1958, Fonds conservé à Paris. 1988. 220F (ISBN -142-5).

This survey is not a catalog which describes every piece in a box, but it is detailed enough to orient a researcher to an appropriate section of a collection. Volume 1 covers the documents which originated from the institutions of the Ancien Régime, papers of aristocratic families, and ecclesiastic archives. Volume 2, of course, describes the archives for the period 1789-1940. Volume 3 lists the archives of the Navy up to 1870 and the Colonial Office documents to 1940.

Volume 4, the most diverse of all volumes, contains the holdings of the Minutier Central des Notaires de Paris, business archives, scholars' papers, maps, microfilms, and audio-visual material. The Minutier Central has been a trove for historians of *mentalities*. Through the records of civil legal transactions, such as marriage contracts, real property sales, wills, and estate invento-

ries, historians have attempted to analyze quantitatively the thoughts and actions of ordinary people, especially religious beliefs and family relationships. Only documents more than 100 years old can be consulted.

Volume 4 also includes the corrections and additions to volumes 1-3. Volume 5 surveys the collections relating to recent history in the archives located in Paris. (Therefore, it excludes the Centre des archives contemporaines at Fontainebleau.) It also gives a detailed list of the members of the French Cabinet from 1940 to 1959.

Les Archives nationales. L'état des inventaires. Paris: Archives nationales, dist. by La Documentation française, 1985-86. 4 v. Contents: 1. *Ancien Régime.* 1985. 150F (ISBN 2-86000-067-4); 2. *1789-1940.* To be published. 3. *Marine et Outre-Mer.* To be published. 4. *Fonds divers.* 1986. 160F (ISBN -103-4).

L'état des inventaires des Archives départementales, communales et hospitalières.... Paris: Archives nationales, 1984. 2v. 390F/set.

Together these two titles are a major revision of the *État des inventaires des archives nationales, départementales, communales et hospitalières au 1er janvier 1937* and *Supplément (1937-1954)* (Guide DC162) and describe all inventories as of January 1, 1983, for regional archives as well as the Archives nationales.

The use of terms such as *inventaire analytique*, *répertoire numérique*, *catalogue*, and *inventaire sommaire* is standardized throughout the series. Together with helpful notes under each item describing the arrangement and indexes, this inventory of inventories would give the prospective archival researcher a good idea of tools available. On some of the inventories, the researcher is expressly warned that they are "difficult to use."

In France, government business extends into greater domains than in the United States, so the reader would find not only documents in politics and national finance but also records relating to theater, fine arts, cinema, and universi-

ties: Série AJ, for example, contains the archives of the Théâtre de l'Odéon, broadcasting, and music education. A number of private archives are also deposited in the national and departmental archives. Among the *Fonds divers*, are archives of business firms (Série AQ), scholars' papers (Série AB XIX), newspapers (Série AR), and family archives (Série AP). The inventory includes catalogs of audio-visual material, oral history, and microforms.

The *État des inventaires des Archives départementales* has two parts: part I: general tools of research arranged by historical period and subject; and part II: tools of research by department. The set includes a list of laws, statutes, etc., relating to the archives and a list of chief archivists.

France. Ministère des affaires étrangères.

État général des inventaires des Archives diplomatiques. Paris: Imprimerie nationales, 1987. 249p.

Unlike its predecessor, which was compiled mainly as a manual for the archival staff in 1967, this catalog of inventories aims to assist readers by including inventories of the archives of diplomatic and consular stations and records of the French occupation in Germany and Austria. This supplements the two-volume guide published in 1984-85: *Les Archives du Ministère des Relations extérieures depuis les origines, histoire et guide suivis d'une étude des sources de l'histoire des Affaires étrangères dans les dépôts parisiens et départementaux*.

Guide des Papiers des ministres et secrétaires d'état, de 1871 à 1974. 2d ed. Paris: Archives nationales, 1984. 282p. (ISBN 2-86000-099-2).

This guide to archival material of cabinet members in national, departmental, and private archives is arranged in alphabetical order by name, with short biographical data, location of papers with brief descriptions, catalogs, if any, and terms of access.

Guide des Papiers privés d'époque révolutionnaires. Paris: Archives nationales, 1987. 301p. (ISBN 2-86000-132-8).

Arranged by location, it covers departmental archives and the Archives nationales—index by name, brief description, call number, and a catalog or index, if available.

L'Administration parisienne à la Veille de la Révolution: Délibérations du bureau de la ville de Paris, 1784-1790. Paris: Archives nationales, 1989. 137p. (ISBN 2-86000-149-2).

This is an inventory of the Minutes of the Bureau, Série H(2), 1954-1961.

Documents du Minutier central des notaires de Paris: Inventaires après décès. Paris: Archives nationales, 1982. In progress. Contents: v. 1: 1483-1547, par Madeleine Jurgens. (ISBN 2-86000-039-9).

Also available are the catalogs of records in the Minutier on special topics, mainly the arts and literature: *Ronsard et ses amis*, compiled by Madeleine Jurgens. 1985 (ISBN 2-86000-109-3); *Histoire de l'art au XVI^e siècle, 1540-1600*. v. 1-2, 1985-86. 500F (ISBN 2-86000-108-5); *Documents du Minutier central concernant les peintres* (Paris: SEVPEN, 1969).

Bernard, Gildas. *Les familles juives en France: XVI^e siècle—1815. Guide des recherches biographiques et genealogiques*. Paris: Archives nationales, 1990. 281p. 230F (ISBN 2-86000-167-0).

The most recent addition to biographical and genealogical research. It supplements *Les familles protestantes en France: XVI^e siècle—1792* (1987. 699p.) and *Guide des recherches sur l'histoire des familles* (1981. 335p.). The last guide treats the population incorporated in the parish records of the Catholic Church.

Les inventaires de Archives nationales de Paris. Cambridge, Eng.; Alexandria, Va.: Chadwyck-Healey. Approximately 6,500 Microfiche. \$40,000 est.

Chadwyck Healey is expanding the scope of its microfiche reprinting of national inventories to include British and French archival guides. The newest covers the Archives Nationales and has just begun. When completed, the 740 inventories will be divided into six sections: pre-1789, modern (1789-1940) and Con-

temporary (since 1940), private archives, plans, Revolutionary France, and fine arts. The price is prohibitively high. One hopes a library would check the *État des inventaires* to see if individual indexes most useful to their clientele could be purchased separately.—J.S.

NEW EDITIONS, SUPPLEMENTS, ETC.

The *Chambers Biographical Dictionary* (Edinburgh: Chambers, 1990. 1604p.; 1969, Guide AJ31) is published in this country under the title *Cambridge Biographical Dictionary* (New York: Cambridge Univ. Pr., 1990. 1604p. \$34.50). The contributors are British and the dictionary has a strongly European slant. In this edition the focus is more on the twentieth century, on women, and "personalities from more popular spheres such as sports, media, and jazz" (Pref.). Dropped is the subject index by broad categories, e.g., exploration and geography; the cross-references are retained.

K.G. Saur has issued an index to one of its large microfiche biographical projects: *Índice biográfico de España, Portugal e Iberoamérica/Spanish, Portuguese and Latin American Biographical Index*, edited by Victor Herrero Mediavilla and Lolita Rosa Aguayo Nayle (München: Saur, 1990. 4v. 1429p. 960DM). The *Índice* is a list of about 200,000 names included in the microfiche set, *Archivo Biográfico de España, Portugal e Iberoamérica*, and cites the biographical dictionary from which the entry came, as well as the position on the microfiche where the entry is reprinted. Also included are birth and death dates and occupation to make identification easier. The people selected for coverage lived between the seventeenth century and the early years of the twentieth century. The *Índice* is a useful gateway to one's collection of Spanish and Portuguese biographical dictionaries even if the library has not purchased the microfiche set.

The eleven years from June 30, 1976 to June 30, 1987, saw the deaths of some of the great librarians—Jesse Shera, Constance M. Winchell, Louis Round Wil-

son, Maurice Tauber, to name but a few. Fifty-one such library leaders are treated in the *Supplement to the Dictionary of American Library Biography*, edited by Wayne A. Wiegand (Englewood, Colo: Libraries Unlimited, 1990. 184p. \$45). About one-third of the biographies have been published previously in the *Journal of Library History* (now *Libraries and Culture*). The *Supplement* follows the pattern set by the original edition (1978. Guide AB102): alphabetical arrangement, extensive survey of the career, and a concluding bibliography for each, listing obituaries and primary and secondary sources.

The *Biographical Directory of the United States Executive Branch* (New York: Greenwood, 1990. 567p. \$75. 1977, Guide CJ122) is updated through 1989 for the Reagan and Bush administrations. Besides the new entries, older ones are updated as necessary.

Treatment of another part of the Federal government has also been updated: *Congressional Quarterly's Guide to the U.S. Supreme Court*, by Elder Witt, 2d ed. (Washington: Congressional Quarterly, 1990. 1060p. \$149; 1st ed. 1979; Guide CK141) The arrangement is the same though many of the articles have been expanded or added to reflect events and cases of the last ten years, e.g., affirmative action, the separation of powers. The subject index is now more detailed, and there is a complete case index.

David Mort has updated his *Sources of Unofficial UK Statistics* (2d ed., Aldershot, Hants., Brookfield, Vt., Gower, [1990]. 413p. £45; 1st ed. 1985). In this edition, "1077 statistical titles and services produced by over 600 organizations are included. . . [with] the information on the sources obtained between March and September 1988" (Introd.).

Die Frauenfrage in Deutschland has a murky publishing history. The first volume covered 1790–1930, was edited by Hans Sveistrup and Agnes von Zahn-Harnack, and published in 1934. Volumes 2–8 covered publications 1931–1976 and were published by the Deutscher Akademikerinnenbund. With

v.8, K.G. Saur took over the publication and in 1982 issued v.10, a cumulation of v.2-9, which brings coverage of publications on women in Germany to 1980. Following this event Saur began a new series (n.F.) which is an annual bibliography for each year beginning with 1981. The latest to appear is n.F. 4, for 1985 (München: Saur, 1990. 413p. 78DM) which lists almost 4,500 essays, books, and articles. This is a comprehensive compilation and one hopes the schedule of publication will accelerate.

Granger's Index to Poetry (Guide BD302) has been completely revised and published in a ninth edition under the title *The Columbia Granger's Index to Poetry* (New York: Columbia Univ. Pr., 1990. 2082p. \$175), edited by Edith P. Hazen and Deborah J. Fryer. The Index includes 150 new anthologies published up to June 30, 1989, and more than 100,000 poems. Accompanying this new edition is *The Columbia Granger's Guide to Poetry Anthologies*, compiled by William and Linda Sternberg Katz (New York: Columbia Univ. Pr., 1991. 231p. \$45). The compilers have taken all the anthologies included in the ninth edition and listed them by the type of poetry published in each volume, e.g., Latin American poetry, political poetry, provided a complete bibliographical citation, and an evaluative annotation. Finally there is a two-page list of highly recommended anthologies.

The literature on proverbs has found a significant bibliographer in Wolfgang Mieder, who compiled *International Proverb Scholarship: An Annotated Bibliography* (1982, Guide BD175). Now comes a supplement of almost 900 entries for those items missed in the earlier work: *International Proverb Scholarship... Supplement I: 1800-1981* (New York: Garland, 1990. 436p. \$54. Garland Folklore Bibliography no. 15. Garland Reference Library of the Humanities no. 1230). Mieder even learned Russian to complete the coverage in that language. A second supplement is planned to cover entries for 1982-1991.

The Dictionary of Literary Biography (Detroit, Mich.: Gale, 1990. ca.

\$103/each. Guide BD416) is in good health and issuing new volumes at an enormous rate: v. 92, *Canadian Writers, 1890-1920*, ed. W.H. New (472p.); v. 93, *British Romantic Poets, 1789-1832*, 1st series, ed. John R. Greenfield (423p.); v. 94, *German Writers in the Age of Goethe: Sturm und Drang to Classicism*, ed. James Hardin and Christoph E. Schweitzer (413p.); v. 95, *Eighteenth-Century British Poets*, 1st series, ed. John Sitter (436p.); v. 96, *British Romantic Poets, 1789-1832*, 2nd series, ed. John R. Greenfield (428p.); v. 97, *German Writers from the Enlightenment to Sturm und Drang, 1720-1764*, ed. James Hardin and Christoph E. Schweitzer (399p.); v. 98, *Modern British Essayists*, 1st series, ed. Robert Beum (421p.).

Shakespeare: A Bibliographical Guide is a collection of bibliographical essays written by scholars, edited by Stanley Wells (1973; Guide BD710). The new edition is much revised, still aiming "to provide a selectively critical guide to the best in Shakespeare scholarship and criticism" (Intro.), and adding an additional chapter, "Critical Developments: Cultural Materialism, Feminism and Gender Critique and New Historicism." There is still no index (Oxford: Clarendon, 1990. 431p. £35).

Some supplementary volumes can be announced: Norman Kiell, *Psychoanalysis, Psychology and Literature* (Metuchen, N.J.: Scarecrow, 1990. 587p. \$67.50) adds coverage, mostly 1980-1987, to his earlier compilation (Guide BD11). The *Index to Plays in Periodicals 1977-1987*, compiled by Dean Keller (Metuchen, N.J.: Scarecrow, 1990. 391p. \$42.50) supplements the 1979 edition (Guide BD212) by adding 4,605 plays in 104 periodicals. The same journals are analyzed as in the older work, if they are still being published, and several new ones are added. The third supplement to *English Novel Explication*, compiled by Christian J. W. Kloesel (Hamden, Conn.: Shoe String Pr., 1990. 351p. \$55; Guide BD629) lists criticism published from 1986 through the first half of 1989, with a few earlier items.

The International Dictionary of Films and Film-Makers (1984-1987. 5v.) is being

revised, updated, and much expanded by Nicholas Thomas. Volume 1, *Films*, has just appeared (Chicago: St. James, 1990. 1105p. \$95). The number of pages has doubled, stills have been added, bibliographies updated, there are 150 completely new entries, and the listing of films by director is also new.

In order to recognize Black performing artists in film, television, radio, theatre, dance, and musical performance, the *Directory of Blacks in the Performing Arts* (1978), compiled by Edward Mapp, gives for each performer a short biography emphasizing information about the career. Also included is a *Directory of Organizations*. Now a second edition is available (Metuchen, N.J.: Scarecrow, 1990. 594p. \$57.50) which updates the entries in the first edition and adds 300 new entries. The Bibliography is much revised and updated.

As work progressed on the *Thesaurus Linguae Graeca* database, guides to indicate which Greek authors were included and which editions were used were published in 1977 to a small circulation, followed by a second edition in 1986 and now is again revised and expanded for a third edition, *Thesaurus Linguae Graeca Canon of Greek Authors and Works* (New York: Oxford Univ. Pr., 1990. 471p. \$39.95). The compilers, Lucy Berkowitz and Karl A. Squitieri, have completed the listings for parts I-III, Greek authors up to 600 AD, and have included representative Greek authors, 600-1453, selected by the TLG for coverage because they are important sources for quotations of earlier authors, because they compiled scholia to authors of the classical period, or because they are authors of major Byzantine historiography and chronography (the important Byzantine chronicles are cited).

Two new continuations for the arts: *Bibliography of American Folk Art for the Year 1988*, compiled by Eugene P. Sheehy

and Rita G. Keckeissen (New York: Museum of American Folk Art, 1990. 38p.) to cover publications for 1988 and a few for 1987 inadvertently omitted. Volume 2 of *The Index of Paintings Sold in the British Isles during the Nineteenth Century* covers some 476 transactions which occurred during the years 1806-1810 (Santa Barbara, Calif.: ABC-CLIO, 1990. 2v. \$195).

Alan Meckler and Ruth McMullin compiled *Oral History Collections* (Guide DB63) to describe oral history projects by listing, with brief descriptions, persons interviewed or prominently mentioned in an interview (with an occasional subject entry). Now Meckler has published the *Oral History Index: An International Directory of Oral History Interviews* (Westport, Conn.: Meckler, 1990. 434p. \$145) to expand on the initial effort. Based on responses to questionnaires, the volume is an "alphabetical index to over 30,000 oral history transcripts held at nearly 400 oral history centers in the United States, Canada, Great Britain, and Israel" (Intro.). It still has no subject index.

The Cultural Atlas of Russia, by R. R. Milner-Gulland (New York: Facts On File, 1989. 240p. \$40) is the same as the *Atlas of Russia and the Soviet Union* (Oxford: Phaidon, 1989. 240p. £19.50) even though nothing is said in either volume to alert one to this fact.

Facts On File has published another atlas with a slightly different problem. *Atlas of American History*, compiled by Robert H. Ferrell and Richard Natkiel (New York: Facts On File, 1987. 192p.) is a typical historical atlas combining pictures, photographs, maps, and text. This atlas is now reissued (1990. \$27.95) with a banner on the dust wrapper announcing "updated for 1990." It has been updated with the addition of one map and graph showing 1988 election results and with the addition of Bush's name to the list of U.S. presidents.

"Existing Collection Strength" and Shelflist Count Correlations in RLG's *Conspectus for Music*

William E. McGrath and Nancy B. Nuzzo

"Existing Collection Strength" (ECS) is an estimate of the extent to which subject areas in Research Libraries Group (RLG) collections meet research level objectives on a scale of 0 to 5. ECS can be interpreted as a proxy for shelflist counts. To test that assumption, two main sets of correlations were computed: 1) 17 correlations for 17 RLG libraries across 138 LC class ranges, indicating how well the scale represents collection strength within a library; 2) 138 correlations for 138 LC ranges across 17 libraries, indicating how well those ECS estimates were made from library-to-library. "Within library" correlations ranged from 0.36 to 0.89, all significant, with a confidence interval of the mean (0.66) from 0.55 to 0.74. "Across library" correlations ranged from -0.34 to 0.94, with none significant below 0.47. The mean was 0.54, with a confidence interval 0.08 to 0.81. As a proxy variable for shelflist within libraries, ECS is expeditious but, necessarily, less than perfect, and is, therefore, a trade-off between convenience and accuracy. However, the wide range of correlations across libraries, from inverse to highly positive, indicates that using ECS to compare libraries is not appropriate, probably because each library interprets and applies the ECS scale differently.



he Research Libraries Group (RLG) *Conspectus* is an unusual source of data about library collections.¹ According to Nancy E. Gwinn and Paul H. Mosher, it was intended to help RLG members evaluate and compare their collections and to facilitate coordinated collection development by summarizing existing and future collection strengths.² Its large

size and widespread recognition by RLG members and others suggest that a close examination of its data would yield interesting insights for collection development and analysis in general.

PURPOSE

A novel concept of the *Conspectus* is the variable "existing collection strength," or ECS. ECS was intended to

William E. McGrath is Professor in the School of Information and Library Studies and Nancy B. Nuzzo is an Associate Librarian in the Music Library at State University of New York at Buffalo, Buffalo, New York 14260. This study was supported by the Council on Library Resources (CLR Grant 4015). The authors wish to thank Leslie Hume and James Coleman of the Research Libraries Group for their interest and support. We also thank the Council on Library Resources and Deanna Marcum, formerly of CLR, for their support. RLG staff and member libraries do not necessarily endorse these findings; all errors, interpretations and misinterpretations are solely our own.

be a shortcut for representing collections by assigning numerical values to predefined "levels" of RLG member library holdings. How well ECS represents collections is an important consideration in its continued use. This study addresses that question by examining the data in one *Conspectus*, that for music libraries.³ In addition to ECS values, the *Conspectus for Music* contains shelflist counts of member library collections. These counts can be directly compared or correlated to ECS values.

RLG itself has conducted numerous "verification" studies of its collections. These interesting studies are available from RLG, and have been reported by Paul H. Mosher and Jim Coleman.⁴ Our study was not affiliated with those verification studies, though we received complete cooperation from RLG.

Rationale for correlating ECS and shelflist counts can be found on page 2-1 of the *RLG Collection Development Manual* containing the following description of ECS.

1. These values [ECS] describe collections or collection policies absolutely, not relatively. They assume, therefore, a national perspective and a broad cognizance of all facets of collecting.
2. When the value describes existing collection strength, it should relate to national shelflist measurement, reflecting what is actually on the shelves.⁵

We interpret these statements to mean that ECS is intended to mirror library holdings, i.e., to reflect actual shelflist counts.

METHOD

ECS values are expert judgments intended to represent predefined levels of collection strength in each library in specified LC classification ranges. These values, or "levels" as they are called in the *Conspectus*, range from 0 to 5.⁶ The designers of the *Conspectus* assigned each of these levels a specific definition of collection strength. For the purpose of

this analysis, these definitions are irrelevant, except to note that 0 is the minimum and 5 the maximum, and that each value signifies the strength of holdings as judged by collection development librarians.

The ECS 6-point scale can be interpreted as an interval scale variable. An interval scale usually has a fixed range, and the difference between two adjacent scores is the same as that between any other adjacent scores. For example, in the Fahrenheit temperature scale, which ranges from 0 to 100, the difference between 60 and 62 degrees is the same as that between 62 and 64 degrees. With ECS, the difference between level 3 and level 4 is taken to be the same as between any other level such as 2 and 3 or 4 and 5, without regard to the actual number of holdings the levels are intended to represent.

A ratio-level scale is one in which 0 represents a true absence of value, rather than merely the smallest number, and the largest number has no theoretical maximum. Any two values can be expressed as a ratio. Thus, ECS is not quite a ratio-scale variable because a level of 4, for example, is not twice the level of 2.

An ordinal scale is one in which scores or counts are not implicit in the ranks; one rank is simply lower or higher than another, while ranks have no theoretical maximum. Thus, ECS is probably more than ordinal because shelflist counts are implicit, even though not expressed, and because it also has a maximum permissible value. Interpretation of the data as ordinal would result in a large number of tie ranks—with most of them tied at 2 or 3. Rank order correlation methods do not handle large numbers of ties very efficiently.

ECS values are intended to "reflect what is actually on the shelves," whether 10, 100, or 10,000 volumes. Most elementary statistics texts explain that ratio scales contain more information than interval, interval more than ordinal, and ordinal more than nominal. A collection containing 10,000 volumes is twice that of 5,000, but an ECS of 4 is not twice that of 2. Thus, by *estimating* existing

strength, much information about *actual*, highly variable shelflist counts is not available. Of course, that is presumably the reason for using ECS in the first place—when shelflist data are not available, or too difficult, expensive, or time-consuming to collect. The important question is, how much information is lost? In this study, that question becomes, how well does the ECS interval scale represent the shelflist ratio scale?

Thus, for the purpose of analysis only, ECS values are treated as interval scale. The danger therein is that the ECS values will be regarded as containing more information than they in fact do. The question of whether they are truly interval, ordinal, or something else is left unanswered.

Another major statistical question is whether each library interprets the scale values in the same way. For example, is a 3 in one library the same as a 3 in another? The question may be addressed in part by computing cross-library correlations.

If ECS values and shelflist counts agree fairly well, then collection development librarians could feel confident in using ECS.

If ECS values and shelflist counts agree fairly well, then collection development librarians could feel confident in using ECS. To measure the extent of that agreement, three sets of Pearson product-moment correlations were computed between music library ECS values and their corresponding shelflist counts (SHELFIST): 1) correlation within libraries, with LC ranges as the units of analysis; 2) correlation across libraries, with libraries as the units of analysis; and 3) correlations with the units of analysis as a composite of LC ranges and libraries. Correlational methods depend a great deal on how the variables are defined—whether they are continuous or dichotomous, nominal, ordinal, interval or ratio—and on the research objective.⁷

Pearson correlations are appropriate for interval-level data but require that data to be normally distributed and have the same variance. Both ECS and SHELFIST violate this assumption to some degree. This violation requires that one or both variables undergo some transformation to bring them into line with one another. In this study, a logarithmic transformation of SHELFIST was made, rendering it fairly normal, prior to computation of correlations. This transformation has the effect of improving the correlations somewhat.

RESULTS

Correlation within Libraries

"Correlation within libraries" tests the hypothesis that the ECS values of a particular library and its corresponding shelflist counts are the same. Complete shelflist counts of 138 LC music classification ranges were available for 17 music libraries. Here, the unit of analysis is the LC music classification range with a sample size of 138 classes (figure 1). Correlation coefficients for these 17 are tabulated in table 1. All coefficients were computed in the LOTUS 1-2-3 microcomputer spreadsheet program.⁸

The computed coefficients are estimates of the true correlation, which we cannot know precisely, but which can be reported as confidence intervals. Their accuracy depends on the sample size: the larger the sample the more accurate the coefficient. The best we can say is that 1) the true correlations lie somewhere between lower and upper limits of the confidence intervals, or that 2) the true correlation must be at least some minimum value to be significant. Table 1 shows confidence intervals as well as the smallest coefficient required to be significant.

Correlations range from 0.36 to 0.89, with mean of 0.66 and confidence interval 0.55 to 0.74. The interval for the computed mean is also shown. The true mean lies somewhere between 0.55 and 0.74, with $n = 17$. The overall correlation of 0.67 agrees with the mean for libraries, 0.66.

LC Classification Range	ECS	SHEFLIST	Log of SHEFLIST
M1	3	94	1.97
M2	4	1920	3.28
M3-3.1	4	486	2.68
M5	3	37	1.57
M6-19	3	810	2.9
M20-39	4	2114	3.25
.	.	.	.
.	.	.	.
.	.	.	.

-etc.-

Figure 1. Partial tabulation of ECS values, with shelflist counts and their logs within one library, NYBS (SUNYBuffalo), from the *Conspectus for Music*, May 1986. Sample size=138. Correlation coefficients were computed for this library and 16 others.

Random error, sample size, and variables not under a library's control all affect correlations. When confidence intervals for two libraries overlap, it is incorrect to say that one library has done better than another. Their correlation coefficients are unlikely to be significantly different. Because our intent was not to compare libraries, they are listed in table 1 alphabetically rather than ranked by correlation coefficients.

Correlation across Libraries—by LC Classification Range

Correlation by LC range tests the hypothesis that the ECS values and their corresponding shelflist counts are the same for a particular classification range. In a very important sense, what is being tested is whether each library interprets collection strength in the same way. That is, does "existing collection strength" mean the same thing in each library? Is a value of 3 in one library the same as a value of 3 in another library? High correlations would indicate that libraries tend to interpret ECS values in the same way.

Here the unit of analysis is the library, and the sample size is 17 (figure 2). One hundred thirty-eight correlation coefficients between ECS and SHEFLIST were computed for each of the 138 LC classification ranges. These coefficients

are tabulated in table 2. They ranged very broadly from -0.34 to 0.94. It should be noted immediately that a sample of 17 is not large, hence it is not surprising that a substantial number of correlations, about 37%, were not significant. Given the small sample size, only correlations higher than 0.47 can be considered significant at the 95% confidence level.

The small sample size also accounts for the lack of confidence in the mean correlation with a broad interval of .08 to 0.81. This interval indicates that the true mean could have any positive value between those two extremes, from virtually no correlation to a very high correlation. When only 17 libraries have counted their shelflists, the mean ECS across libraries is not especially reliable. Should the number of libraries counting their shelflists be increased substantially, the mean ECS might then be somewhat more reliable.

General Correlation between ECS Values and Shelflist Counts Irrespective of Library or LC Classification

Correlations may also be tested without categorizing ECS and shelflist values by library or music classification ranges, and instead may be tested by treating each ECS/shelflist comparison as an observation either from the overall *Music*

TABLE 1.
 "WITHIN-LIBRARY" CORRELATION COEFFICIENTS* BETWEEN ECS
 VALUES AND LOGARITHMS OF SHEFLIST FOR 17 MUSIC LIBRARIES.

Library	Code	Correlation Coefficient	Confidence Interval
Brigham Young Univ.	UTBG	0.36	(0.16-0.54)
Colorado State Univ.	COSG	0.49	(0.30-0.63)
Columbia University	NYCG	0.56	(0.39-0.69)
Cornell University	NYCX	0.73	(0.61-0.82)
Dartmouth	NHDG	0.54	(0.37-0.68)
Johns Hopkins	MDJG	0.81	(0.71-0.87)
New York University	NYUG	0.67	(0.53-0.77)
Northwestern Univ.	ILNG	0.61	(0.45-0.73)
Notre Dame	INDG	0.89	(0.83-0.92)
Rutgers University	NJRG	0.68	(0.55-0.78)
Stanford University	CSUG	0.46	(0.26-0.61)
SUNY-Buffalo	NYBS	0.76	(0.65-0.84)
Temple University	PATG	0.72	(0.60-0.81)
Univ. Calif.-Berkeley	CUBG	0.63	(0.47-0.74)
Univ. of Michigan	MIUG	0.77	(0.66-0.84)
Univ. of Oklahoma	OKUG	0.71	(0.58-0.81)
Yale University	CtYG	0.77	(0.66-0.84)
Mean correlation (n=17)		0.66	(0.55-0.74)

* All are significant @ 99% confidence level for 137 df. (Smallest correlation needed to be significant = 0.23)

Conspectus, from music scores only, or from music literature only. Here, the unit of analysis is neither "Library" nor "LC range." It is, instead, a composite—i.e., "Library/LC range," as in figure 3. Here, the sample is much larger—virtually the entire population of ECS values and shelflist counts—and the confidence much better. Three coefficients were computed, 0.67, 0.71 and 0.64, for the overall *Music Conspectus*, for Music Scores, and for Music Literature (table 3). Though these correlations may seem moderately high, and though the large sample size may seem to provide high statistical confidence, they should be interpreted with caution for reasons given previously.

DISCUSSION

ECS as a Surrogate Measure

The methods discussed above show that 1) correlations between estimates of collection strength and actual counts of holdings are always somewhat less, and sometimes substantially less, than perfect; 2) correlations vary from library to library and from subject to subject; and 3) confidence in those correlations can be expressed only in terms of a range between some high and some low. The correlational approach measures the extent to which ECS agrees with actual shelflist counts and the statistical confidence we can have in those correlations. Because ECS values are surrogates of shelflist

Library	ECS	SHEFLIST	Log of SHEFLIST
COSG	2	84	1.92
CSUG	3	399	2.6
CTYG	4	692	2.84
CUBG	3	437	2.64
ILNG	3	330	2.52
MDJG	1	95	1.98
MIUG	2	443	2.65
NHDG	2	118	2.07
NJRG	3	198	2.3
NYBY	2	296	2.47
NYCG	3	440	2.64
NYCX	4	512	2.71
NYUG	2	218	2.34
OKUG	1	68	1.83
PATG	3	202	2.31
UTBG	3	113	2.05

Figure 2. Typical array of ECS, with shelflist counts and their logarithms, for LC range ML2900-3275, *Conspectus for Music*, May 1986 (see appendix A); 138 correlations between ECS and log of SHEFLIST, with N = 17, were computed from such data.

counts, they are necessarily and by definition less reliable than actual counts. Qualitatively, the agreement between ECS and shelflist counts might be considered moderately low to moderately high—about what should be expected for judgmental data.

Within-Library Correlations

The correlation coefficient in the "within-library" test is for only one library at a time. Thus, a coefficient for one library says nothing about that for any other library.

Furthermore, a within-library coefficient explains nothing about the library or its collection. It is, at best, a statistic describing a tenuous relationship between two ways of measuring the same thing. No inferences can nor should be made from it.

Across-Library Correlations

"Across-library" correlations ranged broadly—from moderately negative to nearly perfect. When a large number of statistics such as correlations and means are computed, a very broad range of results is not unusual in many contexts. But how could estimates of collection strength result in negative correlations? It happens this way: one library estimates its strength to be 5 in some LC range, with a shelflist count of 450 volumes; another estimates its strength in the same range to be 3, with a count of 700 volumes. Obviously these numbers have an inverse relationship, a negative correlation, and obviously both libraries have different perceptions of 3 or 5. In theory, each library estimates the strength of an LC range relative to some absolute strength. In practice, estimates

TABLE 2.
FREQUENCY DISTRIBUTION OF CORRELATION
COEFFICIENTS BETWEEN ECS VALUES AND LOGARITHMS OF SHEFLIST
FOR 138 LC MUSIC CLASSES ACROSS LIBRARIES

Distribution (no. of ranges)	Frequency class limits of correlation coefficients ^{a,b}	Significance ^c
1	-0.34 to -0.20	not sig (95%)
2	-0.19 to -0.05	not sig (95%)
4	-0.04 to 0.08	not sig (95%)
9	0.09 to 0.23	not sig (95%)
13	0.24 to 0.37	not sig (95%)
22	0.38 to 0.51	not sig (99%)
35	0.52 to 0.65	sig (95%)
39	0.66 to 0.79	sig (99%)
13	0.80 to 0.94	sig (99%)
<u>138</u>	Total	

a) These are frequency limits, not confidence intervals.

b) Mean correlation = 0.54, conf.interv. = (0.08-0.81). Median = 0.59.

c) Correlations smaller than 0.47 and 0.59 not significant @ 95% and 99% confidence level, respectively, df = 15.

are probably sometimes made relative to perceptions of strength in other libraries. Because different perceptions are inevitable, and because negative correlations are hardly acceptable relationships between estimated and actual collection strengths, cross-library comparisons should not be trusted and are probably not intended by RLG. The very broad range of correlations may substantiate what RLG meant when it said ECS values "describe collections absolutely, not relatively," i.e., not relative to other libraries.

Because different perceptions are inevitable, cross-library comparisons should not be trusted and are probably not intended by RLG.

General Correlations: Overall, Music Scores, Literature

The moderately high general correlations for the composite library/LC data are somewhat more reliable than those for "within" and "across" because of the

large sample size. They should still be treated with caution, of course, for the same reason that all correlations in this study should be suspect. Because one purpose for making ECS judgments in the first place was to establish a measure for facilitating library cooperation, coefficients having no reference to specific libraries may be academic. Yet, these correlations could be useful as standard indexes, to which all other correlations could be compared. For example, if a new library were to join the Group and wished to evaluate its collection, it would be helpful to know that the overall correlation of 0.67 could be used as a frame of reference.

Questions of Methodology

One question about using logarithmic transformations of SHEFLIST is that ECS is also a transformation of SHEFLIST. ECS is a judgmental transformation from true, essentially continuous, ratio data (SHEFLIST), to perceptual, discrete, interval-level data. In effect, we are, in a circuitous procedure, correlating SHEFLIST with itself; more specifically, two transformations of shelflist

Library/LC range	ECS	SHEFLIST	Log of SHEFLIST
CSUG/ML47-54	3	1064	3.00
CSUG/ML2900-3275	3	399	2.60
CSUG/ML3300-3354	2	3	0.47
.	.	.	.
CTYG/ML47-54	4	806	2.90
CTYG/ML2900-3275	4	692	2.84
CTYG/ML3300-3354	3	3	0.47
.	.	.	.
NYCX/ML47-54	4	1568	2.71
NYCX/ML2900-3275	4	512	1.25
NYCX/ML3300-3354	3	18	3.19
.	.	.	.
.	.	.	.
-etc.-			

Figure 3. Partial tabulation of ECS values, shelflist counts, and their logarithms from two composite library/LC ranges in the *Conspectus for Music*, May 1986. Data for general test contains all ranges and all libraries, for a total sample of 2,346 (17 x 138).

TABLE 3. ONE-TO-ONE CORRELATIONS
BETWEEN ECS AND LOGARITHMS OF SHEFLIST.

	Correlation	Sample Size (n)
Overall	0.67	2346
Music scores only	0.71	952
Literature only	0.64	1394

are made with each other: 1) ECS, the judgmental transformation of SHEFLIST, and 2) the logarithmic transformation of SHEFLIST. A more satisfactory approach would be to identify or define other behavioral variables to correlate with SHEFLIST. Data for behavioral variables, of course, may be hard to come by, whereas ECS is relatively easy to obtain.

Sources of Error

RLG librarians are the first to point out the sources of statistical error in the *Conspectus*: the inherent variability of collections, differences in data tabulation, and different procedures for counting, esti-

imating, and reporting. Some of these sources, particularly those concerning the definition of ECS, are noted in the *Conspectus* itself. Even if these sources were perfectly controlled, random error would still exist. If correlations were perfect or nearly perfect, then both the statistical methods and the statistician would be suspect.

The Question of Quality

At the start of this study we assumed that ECS was defined and adopted as a surrogate for actual strength and that actual strength, if measureable at all, could only be measured by the number of items in a library's shelflist. We were,

of course, very careful not to interpret "strength" as quality, an interpretation which would generate vigorous debate. Some librarians maintain that the number of items in a collection is a sufficient measure of quality, while others say that quality is too nebulous a thing to pin down with counts of anything. Though all would agree that strength, quantity, and quality are different things, we offer no rigorous definitions here.

Many attributes of the collection may affect quality: age, recency, specific titles, current acquisitions, budget, selectivity, accessibility, availability, location, as well as the manner of the collection's organization and administration. Additionally, user impressions, demand, testimonials, reputation of the parent institution, and a host of other internal and external attributes all may have an effect. Whether these attributes do or do not measure quality depends very much on how they are perceived and defined. One thing is certain: the extent to which these attributes enter into the estimates of strength must also affect confidence in the ECS concept as well as trust in shelflist counts.⁹

Shelflist as a Measure of Collection Strength

An alternative way of looking at collection strength is to think of it as a theoretical concept, like Plato's ideal, and that neither ECS nor SHEFLIST can be considered actual strength. Rather, both are estimates of that mystical ideal. Strength would then be the sum of all the significant attributes discussed above plus numerical counts and anything else

one might want to throw in. At best, ECS and SHEFLIST alone would then be less than perfect indicators of that strength. Practically speaking, because there are as many ideals as collection development librarians, and none of them more attainable than another, perhaps the most sensible approach is to think of a shelflist count as a reasonable measure of the number of books and of ECS as a flawed but expeditious substitute for those counts.

Further Research

Further research might involve more detailed investigation into the ordinal and interval properties of ECS as well as alternative ways of estimating collection strength. Sampling shelflists as an alternative to judgment may be a more reliable and a more orthodox procedure. Identification of other variables which could be correlated with shelflist counts is another possible direction for research. If ECS becomes a more widely used method for estimating collection strength, investigations into the statistical concept of validity should be undertaken. Other issues that require investigation include determining whether low within-library correlations suggest a flaw in *Conspectus* methodology or hint at the presence of collections with unique strengths, or whether they imply characteristics of the literature that are not evident from shelflist counts. Do low between-library correlations indicate subject areas that require special attention? Researchers need to take up such issues.

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9. Numerous notes in the *Conspectus* describing special features, emphases, exceptions, restrictions, qualifications, and other factors which contribute to the erosion of statistical confidence testify to the difficulties in establishing consistent measurement.

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Book Reviews

Arms, Caroline, ed. *Campus Strategies for Libraries and Electronic Information*. EDUCOM Strategies Series on Information Technology. Bedford, MA: Digital Pr., 1990. 404p. \$34.95 (ISBN 1-55558-036-X). LC 89-16879.

While texts on electronic information seldom find their way into Christmas stockings or birthday wrap, library directors ought to buy the latest book from EDUCOM as a gift for their favorite computer center director or university administrator. This third volume in EDUCOM's strategy series entices the reader to consider how and why academic libraries will play an increasingly critical role in higher education. The book is intended to stimulate campus planning and greater cooperation between computing and library professionals. If read by those two groups, it will succeed.

Patricia Battin, president of the Commission on Preservation and Access, introduces the book by analyzing the impact of technology on higher education. Her vision of the evolving "electronic university" calls for direct delivery of information services to the scholar's workstation. This vision becomes a unifying theme of the book as authors of later chapters articulate the same objective in institutionally specific ways. Battin's introduction is a thought-provoking statement of the challenges and opportunities facing universities in a technologically saturated environment.

Caroline Arms both edited the book and contributed three chapters. She outlines the technological context in which library automation has developed and prognosticates the advances and decision points that will shape electronic information services in the future. These

chapters will be particularly informative for the nonlibrarian or the librarian who lacks background in the application of computer and communications technologies. Nonlibrarians will also appreciate the two chapters that provide an overview of the mission, organization, products, and services of the two national library utilities, OCLC and RLG.

The majority of the book is dedicated to separately authored chapters from ten universities. Each chapter outlines achievements in automation of library services and plans for the future. Institutional reports were gathered from universities of varying size and with differing disciplinary strengths. Included are Brigham Young, Clemson, Columbia, Cornell, Carnegie Mellon, Georgia Institute of Technology, Johns Hopkins, Northwestern, University of Illinois at Urbana-Champaign, and the University of Southern California.

Consistent with the objectives of the book, the institutional chapters focus heavily on campus planning. Readers will be struck by the strong sense of mission and goals that have guided initiatives in the universities covered. For example, Miriam Drake, Director of Libraries, notes that in 1984 Georgia Tech's president stated that "he wanted the institute to have the most technologically advanced library in the nation." Given this objective, librarians formulated a project named Library 2000 that continues to guide the aggressive application of new technologies at Georgia Tech. Similar ventures are reported by other universities such as the Teaching Library at the University of Southern California and the Mercury project at Carnegie Mellon.

The university chapters also detail organizational changes that resulted from

the introduction of automation or were instituted to encourage the effective utilization of new computing and telecommunication technologies. Paula Kaufman, formerly Acting Vice President for Information Services, describes the evolution of Columbia's Scholarly Information Center as an organizational unit that functionally integrates library and computing activities. Authors of the section on the University of Illinois relate how that school contributed to the development of ILLINET, the statewide library network dedicated to resource sharing.

Most librarians, computing professionals, and administrators should find this book surprisingly readable despite its often technical subject matter. Jargon and acronyms are kept to a minimum, and a glossary provides concise, meaningful explanations of library and technical terminology. Important concepts are emphasized throughout the book by enumerating them in sections separated from the text. This stylistic practice, along with liberal use of tables and charts, enables the reader to focus readily on each author's essential points.

Although the book is well edited, there are a few weaknesses. First, it suffers somewhat from attempting to address multiple audiences. Most librarians will be familiar with the information in the chapters on OCLC and RLG, while computing professionals may find discussions of technology elementary. Second, the format of the university chapters becomes somewhat tiresome as each author relates the history of automation at his or her institution. Third, various authors forecast the future of library services and electronic information. By the time the book was published, however, some of the future had become the present, and readers who keep up on the literature will be aware of important developments not covered in the text. These weaknesses are minor and do not seriously detract from the value of the book.

Campus Strategies for Libraries and Electronic Information is an important book for decision makers committed to afford-

ing faculty and students the most advanced information services possible. I highly recommend it to administrators and computing professionals who need to become familiar with issues surrounding the application of computer technology in libraries. I do not recommend the book to those looking primarily for advice on selecting an integrated library system or other specific computer-related products. Although there is certainly ample discussion of specific integrated systems, there is no direct comparison of systems currently being marketed. This is not a failing of the text, because its purpose is to encourage sound planning as a process, not to influence technological decisions.

The publication of *Campus Strategies for Libraries and Electronic Information* at the beginning of the new decade is more than fortuitous. As noted by the president of EDUCOM, Kenneth King, it is part of EDUCOM's continuing effort "to promote the rational and effective use of information technology in higher education." This book is a noteworthy contribution toward that goal and should be read by decision makers who will shape the scholarly information systems of the 90s.—Randy J. Olsen, Brigham Young University, Provo, Utah.

Frank, Francine Wattman, and Paula A. Treichler. *Language, Gender, and Professional Writing: Theoretical Approaches and Guidelines for Nonsexist Usage*. New York: Modern Language Association, 1989. 341p. paper, \$14.50 (ISBN 0-87352-179-X). LC 88-38161.

After almost a decade of discussion and debate, the Executive Council of the Modern Language Association adopted in October 1980 a revised statement of editorial policy for the Association's major journal, *PMLA*. The new guidelines "urge[d] contributors to be sensitive to the social implications of language and to seek wording free of discriminatory overtones." Those deceptively simple sentiments opened the floodgates of reaction and response to the adoption of these new guidelines for

nonsexist usage. In *Language, Gender, and Professional Writing*, Francine Frank, Paula Treichler, and the other contributors outline the terms of this debate. In so doing, they shed light on what might otherwise be dismissed as arcane academic arguments by providing a social as well as a linguistic context for language. A thoughtful and thorough reading of this text should have a profound, if occasionally chilling, effect on how we speak and write.

As the subtitle indicates, the book itself is organized into two distinct, yet interrelated, sections. Part one provides a theoretical examination of the debate over language and sexual equality, while part two offers practical guidelines for nonsexist usage and outlines some of the special problems associated with academic or scholarly writing. Although this book is occasionally difficult, particularly for a nonlinguist, the struggle to grasp ideas that are at once academically objective and politically charged results in an understanding of how rules of "good" usage become canonized—and by whom. Two articles in particular, Sally McConnell-Ginet's "The Sexual Reproduction of Meaning: A Discourse-Based Theory," and Susan J. Wolfe's contribution, "The Reconstruction of Word Meanings: A Review of the Scholarship," allow the nonspecialist to gain insight into the social and sexual construction of language, in which gender plays a major role in how people assign meanings to words. Because both articles refer extensively to the current literature in the field, those who desire to immerse themselves further in the debate need only refer to the lengthy list of works cited or the collection's fine bibliography to locate a treasure chest (or perhaps a Pandora's box) of additional readings.

Librarians approaching this collection may be especially struck by Paula Treichler's essay "From Discourse to Dictionary: How Sexist Meanings are Authorized." As professionals who not only use dictionaries ourselves, but purchase them and recommend them for others to use, librarians can learn a good deal from Ms. Treichler. Lest we fall into

the trap of believing that words arrive, unmediated, onto the dictionary's printed page, Treichler poses such compelling questions as: "Where do meanings come from? What does a 'meaning' formally consist of?...How does the weight of prior discourse constrain the production of future meanings? Whose discourse? Whose future?...Who may authorize meanings?" A task many of us take for granted—adding one more dictionary (or encyclopedia, for that matter) to our reference collections—becomes a considerably more pressing and important responsibility when we begin to think in terms of the production and reproduction of meaning, or, as Treichler puts it, when we realize the extent to which "dictionaries have generally excluded any sense of women as speakers, as linguistic innovators, or as definers of words."

Part two, "Guidelines for Nonsexist Usage," consists of two essays addressing very specific problems. Those of us who teach as well as write should find the discussion of the concept of the generic "he" particularly enlightening. Building on a discussion of "pseudogeneric" words touched upon several times in the theoretical portion of the collection, Treichler attempts to provide readers, writers, and speakers with a range of alternatives to one of the "most notorious...discriminatory practices, the use of male-specific words as generics." While Treichler acknowledges that not all solutions to pseudogenerics render equally successful results (the authors represented in this collection have hardly embarked on a campaign to destroy "good" writing), she provides numerous illustrations of the problem: the supposed inclusivity of the word "he," the universalizing of the term "man" and its variants. Further, and more importantly, she demonstrates an array of linguistic possibilities which permit the writer/speaker to exercise social and cultural sensitivity while avoiding ambiguity.

Libraries, as the cliché goes, are storehouses of culture. Cliches aside, they are, in a very concrete sense, repositories of

the words which give meaning to our collective experience. Although not specifically aimed at librarians, *Language, Gender, and Professional Writing* gives us another tool with which to examine a range of assumptions about libraries and what they do—and do not—contain. Along with offering practical solutions to daily communication problems, the collection provides the theoretical framework for us to enter intelligently into the debate about language and usage and to analyze how we, as librarians, may also effect change.—Ellen Broidy, *University of California, Irvine*.

Hernon, Peter. *Statistics for Library Decision Making: A Handbook*. Norwood, NJ: Ablex, 1989. 200p. \$35 (ISBN 0-89391-586-6). paper, \$19.95 (ISBN 0-89391-605-6). LC 89-6744.

Slater, Margaret, ed. *Research Methods in Library and Information Studies*. London: Library Association, 1990. 182p. \$35 (ISBN 0-85365-908-7).

The London *Times* once classified research under three headings: "the proof of the blindingly obvious;" "the great leap sideways" towards an irrelevant or unjustified conclusion; and the "we'll prove it if it kills you" presentation of incomprehensible statistics intended to overcome any criticism by quantity alone. On the other hand, as Sherlock Holmes said, "Data, data, data!...I can't make bricks without clay." The two books under review offer guidance to library managers, library school students, and other researchers in finding the clay for the bricks of "action research," which Peter Hernon describes as applied research through data collection and analysis for decision-making concerning library programs, collections, services, operations, and staffing.

The two books complement each other and are complemented by a third recently published book: Arthur Hafner's *Descriptive Statistical Techniques for Librarians* (Chicago: American Library Assoc., 1989). Hafner's is an introduction to de-

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scriptive statistics, such as ratios, percentages, means, medians, and so on. He discusses how to round numbers, for example, and how to lay out bar and pie charts. He stops short of inferential statistics—sampling, probability, testing of hypotheses.

Hernon's book, written with the collaboration of six doctoral students, goes beyond descriptive statistics to inferential statistics, as well as to the more general subject of quantitative analysis. It opens with chapters on research and decision making, on quantitative research in library literature, and on the use of microcomputer applications, such as Minitab, for research. The next two chapters cover measurement and descriptive statistics in thirty-seven pages, to Hafner's 250-plus. Hernon devotes the bulk of his book to statistical inference, hypothesis testing, correlation, and advanced statistical techniques like regression analysis, analysis of variance, and factor analysis. He covers a wide range of statistical material here and reminds readers more than once that consultation of standard statistics textbooks will be necessary to flesh out the subjects introduced in his book. In the useful final chapter, Hernon offers some examples of statistical applications in libraries, including a particularly interesting technique for measuring and evaluating usage and availability of CD-ROMs. From Hernon's book alone, however, a reader is not likely to be equipped to understand the Poisson distribution underlying the CD-ROM technique.

Nevertheless, as an introduction to the higher realms of statistical literacy and quantitative research, Hernon is a very capable guide. Especially helpful are the classified bibliographies of articles from library literature on the various statistical topics that Hernon discusses. Librarians concerned with quantitative research will find Hernon worth keeping at hand for these references to and explanations of available techniques.

Margaret Slater's book contains well-edited and integrated essays by ten British librarians, information specialists, and social scientists. Slater's focus is on

both quantitative and qualitative data collection and analysis. Where Hafner has more than 250 pages on quantitative measurement and statistics, and Hernon more than 150, Slater's book covers the same subject in a chapter of thirty pages. (The author of the chapter warns readers, probably unnecessarily, that exploration of statistical techniques will require "a clear mind and a cool head.") The rest of the book concentrates particularly on data collection through surveys. There are chapters on sampling techniques and recruiting respondents, questionnaire design and question phrasing, interviews, group discussions, and observation of subjects (for example, managers using information in their daily work). Of particular interest are the chapters on the currently fashionable field of qualitative research. Slater admits that qualitative research is open to the accusation of "manufacturing a mystique to mask mere mumbo-jumbo and undisciplined charlatanny." Slater and her collaborators, however, offer brief but compelling arguments that qualitative research can complement quantitative research—that where quantitative methods can measure the what and the when and the where, the qualitative approach, through in-depth interviews and related techniques, can elucidate the how and the why. Within its brief compass, Slater's book can be recommended as an introduction to the broad field of library research.

Like Hernon, Slater and her authors remind readers that her book is intended only as an overview. There are sufficient bibliographical references (though not as numerous as Hernon's) to point readers in the direction of standard texts on the research methods covered in Slater. Hernon and Slater also offer an interesting contrast in concluding chapters on communication of findings. Hernon concentrates on a written report for publication, and most of his chapter is devoted to illustrating the use of a software package for checking grammar and rhetoric. Slater's chapter discusses oral and written communication of results to various audiences (including, for example, spon-

sors of the research and respondents to questionnaires) throughout the course of the research.

Hafner, Hernon, and Slater, therefore, together offer a useful introduction to library research—what it is, how to collect data for research, how to do quantitative and qualitative analysis of data, and how to turn research into decisions.—*Kendon Stubbs, University of Virginia, Charlottesville, Virginia.*

Forester, Tom, and Perry Morrison.

Computer Ethics: Cautionary Tales and Ethical Dilemmas in Computing. Cambridge, MA: The MIT Pr., 1990. 193p. \$19.95 (ISBN 0-262-06131-7). LC 89-71358.

The computerization of society during the last twenty years has brought with it astounding gains in our ability to collect, store, manipulate, and manage information. The power of the tools that computers place in our hands has led many—one need not search long for examples—to make extravagant claims about the ability of computer technology to provide revolutionary solutions for a host of previously intractable problems, from office management to automated factories, from ATM machines to expert systems. It is against the grain of these claims that Forester and Morrison's volume attempts to work by relating in detail a constellation of problems that they believe are inherent to computers: they are subject both to malfunctions in hardware and software and to misuse by human beings. What is the downside of information storage if not the invasion of privacy, and what is the downside of information management if not the completely automated battleground of Star Wars?

Computer Ethics has its origins in Forester's and Morrison's classroom work (both teach in Australia) on the human and social context of computing. It is their attempt to highlight some of the more important social and ethical issues that arise from computerization. The book is well suited for both the classroom and for the general reader, and



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should find its place in the burgeoning number of college courses in technology and society. Although of interest to the general reader, the book is designed so that it can be used as a teaching text. It is divided into eight chapters and touches on such subjects as computer crimes, software theft, viruses, hacking, invasion of privacy, and artificial intelligence. Each of the eight main chapters contains a section entitled "Suggestions for Further Discussion." These sections are based on material covered in the chapter and set up scenarios for the classroom or provide the basis for further reflection.

The subtitle describes precisely the authorial strategy: to bring together in one place a list of facts, anecdotes, study results, and surveys that pertain to a general theme, such as computer crimes, and to let these then define the landscape for discussion. There is no attempt here to grapple with ethical issues in a structured, logical fashion. The object is rather to show both the range of social issues within a problem set and inherent difficulties in structuring clear, unambiguous positions. The value of this approach is that it places the computer back into a social structure and makes potent arguments from the sheer mass of assembled evidence. The danger of such a strategy is that it can lack coherence or that the examples chosen may be carefully filtered to reflect the political agendas of the authors.

Within this general framework, the authors also do an excellent job of presenting the problem set and technical language of computers to a nontechnical audience. For example, the chapter "Hacking and Viruses" provides an excellent differentiation among viruses, Trojan horses, logic bombs, and other arcane examples of programming with a malicious intent. The general discussion of software engineering techniques included in the section on unreliable computers should make it possible for the general reader to get a glimpse of some of the problems and difficulties of producing reliable software and hardware (although Tracy Kidder's *Soul of the New*

Machine remains the definitive, if somewhat romanticized, statement on this subject). Similarly, the brief but cogent discussion of the major positions in the current debates on intellectual property, copyright, and patents in the chapter on software theft is noteworthy.

If an agenda is at work here, then it is decidedly democratic, antitechnocratic (not antitechnical), antimilitaristic, and highly skeptical of highfalutin claims, particularly when these are offered as social solutions or make extravagant demands on the public purse. The more egregious claims and some of the epistemological underpinnings of the artificial intelligence (AI) crowd come under particularly sharp attack, as does former President Reagan's Strategic Defense Initiative (SDI), to which the authors devote a separate appendix. While one can certainly disagree with individual points of the authors' political agenda, these are fundamentally social and political issues for which computers provide tools for answers, but computers are not the answers in themselves. This work is largely successful in heightening that awareness and should prove of value to those interested in pursuing the social aspects of computing in greater depth.—James Coleman, *Research Libraries Group, Inc. Mountain View, California.*

Harris, William V. *Ancient Literacy.* Cambridge, MA: Harvard Univ. Pr., 1989. 383p. alk. paper, \$35 (ISBN 0-674-03380-9). LC 89-7588.

From lead curse-tablets in archaic Greece to graffiti on the walls of imperial Pompeii, from monumental inscriptions to bills of sale, medical treatises, and epic poems, the Greeks and Romans left abundant evidence that writing, once introduced, was quickly adapted to a range of purposes. Assumptions about the level of literacy in this part of the ancient world—the title does not disclose that its subject is restricted to Greco-Roman antiquity—have varied, but have often been optimistic. In this well-documented and thorough study, William V. Harris surveys the evidence for the nature and extent of literacy in the

Greek and Roman world and concludes that overall it rarely exceeded 10 percent of the entire population, though among the elite it was often much higher. Such an assertion, Harris acknowledges, will be "highly unpalatable to some classical scholars," those who have maintained that at their pinnacle Greek and Roman civilization depended heavily on the written word and achieved, if not universal, at least very high levels of literacy.

The author uses the results of recent studies of literacy in early-modern and contemporary societies to define the conditions under which majority literacy can emerge. Among these are urbanization, educational opportunity, an economic system which encourages the use of writing, even the availability of inexpensive writing materials. A chronological review of Greek and Roman society occupies much of the book. In it,

Harris seeks to show that many of these preconditions were never fulfilled sufficiently for anything like mass literacy to flourish. The author's broad familiarity with the primary evidence, including literary texts, papyri, inscriptions, and other archeological sources, is apparent in his discussions of the functions of writing during each period, the availability of schooling, and the probable levels of literacy among different social groups and in different geographical areas.

Harris pays special attention to the reduced access to literacy among women during most periods and to the limited educational opportunities for the rural and urban poor and for slaves. He argues that ancient society rarely achieved much more than what he terms "craftsman's literacy," a state in which much of the elite and a large number of

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skilled craftsmen are literate, while women, the unskilled, and peasants are, for the most part, illiterate. While Harris has certainly taken the relevant evidence into account, many of his arguments by necessity are based on the silence of the sources—the absence of contrary evidence—and his interpretation of some of the remaining evidence will certainly be questioned. He concludes each section of the study with an attempt to estimate the literate portion of the total population and of various subgroups. Although this attempt is admirable, it appears rather futile in light of the paucity and inconclusiveness of the sources.

Among the evidence which Harris considers in seeking to define the levels of ancient literacy is the extent of the book trade and the existence of libraries and collections of written texts. For those interested in the history of libraries and publishing, or the dissemination of texts, his discussion of the uses and functions

of the written word as they changed from archaic Greece to late antiquity provides a useful context. Harris' application of recent studies of contemporary and early-modern societies to the problems of ancient literacy is interesting. He underscores the importance of some basic prerequisites, such as educational opportunity and a widely held conviction of the value of universal literacy, necessary for the high levels of literacy associated with developed countries in the contemporary world.

Accessible, well-written, clearly organized, with a useful index and extensive bibliography, *Ancient Literacy* will likely stand as a basic introduction to its subject matter for some years to come. The fact that some of Harris' conclusions will engender controversy in no way diminishes his achievement in gathering, analyzing, and synthesizing such a vast array of evidence.—Edward Shreeves, *University of Iowa, Iowa City.*

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